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THE

Aesculapian.

A MONTHLY JOURNAL

—OF—

MEDICINE AND SURGERY,

EDITED BY

EDWARD J. BERMINGHAM, A.M., M.D.

VOL. I.

JANUARY, 1884.

No. I.



PUBLISHED BY

BERMINGHAM & COMPANY,

28 UNION SQUARE, NEW YORK.

20 King William Street, Strand, London.

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BERMINGHAM & CO., Publishers, 28 Union Square, New York

THE ÆSCULAPIAN.

VOL. I.

JANUARY, 1884.

No. 1.

Original Articles.

ON SYPHILIS OF INFANTS AND HEREDITARY SYPHILIS.

By FESSENDEN N. OTIS, M.D.

Clinical Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York.

If the position taken in the preceding lecture is correct—viz., that syphilis is the result of undue proliferation of germinal cells, brought about by the influence of a syphilitic cell or disease-germ, which has been brought in immediate contact with a healthy germinal cell, then all syphilis must be attributed to a similar cause. There must always be a syphilitic disease-germ to initiate the disease. The different modes through which contact, initiating the disease in adults or children, is effected, has already been explained. Syphilis in infants cannot differ from this, except so far as the disease is modified by the immature tissues in which the disease is developed. In this view, strictly speaking, there can be no such thing as *hereditary syphilis*. The treatment of syphilis of infants must be based on the same principles as that for adults. If, as has been shown by citation of numerous instances, notably by results of the recent extensive observation of M. Fournier and others—the infectious property of syphilis is *self-limited*, and does not continue beyond a period of three or four years, all cases of transmitted syphilis beyond such period, whether by immediate contact or through alleged hereditary influence, becomes impossible. If it can be shown that no well-authenticated case of transmission of syphilis has occurred beyond a period of three or four years, as has been claimed, then an hereditary influence extending through generations cannot be accepted. The necessities for the production of syphilis require for its initiation a *disease-germ of syphilis*. The development of the disease, following its contact with healthy cell elements,

is well understood. A certain definite course in its progress is recognized as necessary in all cases. A stage of proliferation with contagious non-destructive lesions—the so-called primary and secondary periods. Then a stage of accumulation of lymphatic elements: non-contagious, but which produce destructive lesions through mechanical interference with processes of nutrition. In order, therefore, to the production of the disease in the adult, in the infant, or in the embryo, the infecting cell of syphilis must first be brought in contact with healthy cell material. No mysterious hereditary influence is necessary, or can be admitted. If the disease-germ of syphilis by direct contact with external parts or through its amoeboid power, traversing tissue reaches healthy cell material, whether in the adult, the infant, or the embryo, then the syphilitic influence is directly transmitted, and its development must be governed by the same laws that characterize its progress in the known behavior of the disease in the adult, modified to a greater or less extent by the age and degree of stability of the tissues in which the disease is developed. First, the localized proliferation and accumulation of cell material not necessarily destructive; second, accumulations of cell material which induce destructive action through interference with processes of nutrition. In this way it will be seen that syphilis in the embryo, syphilis in the infant, syphilis in the adult, are the legitimate result of similar—in point of fact identical, processes—producing results which, while apparently differing in many respects, may yet be explained in complete harmony with the known behavior of syphilitic disease in the adult. It is undoubtedly the fact that various adynamic diseases and conditions in foetal and infantile life result from pre-existing disease in the generative organs of the parents, who have been subjects of syphilis—but that any syphilitic disease, proven to be such by its power to transmit syphilis,

has been communicated to healthy persons, by infants conceived after the active or contagious stage of syphilis has passed, there is no well-authenticated evidence to prove.

DATE AND MODE OF INFECTION IN CON-
GENITAL (SO-CALLED HEREDITARY)
AND INFANTILE SYPHILIS.

According to the material views of syphilis which have been persistently advanced in the foregoing lectures (as against the mysterious instantaneous infection heretofore directly or inferentially claimed) it will be seen that the infection must date from the moment of contact of the syphilitic disease germ with the germinal material of the embryo, the infant or the adult. The influence of the father, in communicating syphilis to the embryo, through a syphilitic spermatozoon, has been denied, (for reasons previously given). * Besides this, the inability of the semen to inoculate healthy individuals under any circumstances has been positively stated by all recent authorities. Thus Bumstead & Taylor† say: "*It has been proved that the semen is not an infecting fluid, * * * moreover every physician of experience has met with many instances of syphilitic men cohabiting for years with healthy women, who never show any evidence of syphilis.*" Hill & Cooper‡ say: "*The semen cannot be asserted to be contagious with the knowledge we at present possess.*" Cornil,§ in his late work on syphilis (translated with notes and additions by Profs. Simes and White) says: "There are no reliable cases evincing the truth of syphilitic contagion by the spermatic fluid, or of inoculation by the liquid." In a note by the translators they say: "There has been, as far as we know, not one trustworthy case of transmission of syphilis by any of the normal secretions." Van Buren & Keyes|| say:

* See Otis on Genito Urinary Diseases with Syphilis, Birmingham & Co., 1883, p. 42 et seq.
† Bumstead & Taylor on Venereal Diseases, 4th ed. N. Y. 1879, p. 746.

‡ Hill & Cooper on Syphilis and the Local Contagious Disorders. London, 1881. 2d ed., p. 73.

§ Cornil on Syphilis, Am. ed., 1882, p. 35.

|| Van Buren & Keyes, Genito-Urinary Diseases with Syphilis. N. Y. 1874. p. 520.

"None of the physiological secretions, or excretions, can produce syphilis by inoculation. Mucus from the mouth, or vagina, may be inocuable if any syphilitic lesion (chancre, mucous patch) exist upon the membrane from which the fluid is collected, otherwise the result is invariably negative. The same has been proved by experiment to be the case with tears, sweat, urine, semen, milk." Fournier* says: "*It has long since been established that the semen of a syphilitic subject is not susceptible of transmitting contagion.*"

If these statements mean anything they mean that syphilis cannot be communicated by means of the seminal fluid. And if this be so, how can the father infect the ovum with syphilis, as has been claimed? The only way through which the father could by any possibility communicate syphilis directly to the foetus, would be through the medium of the semen, through which alone access to the ovule is possible. By proving, then, that the semen is non-infectious, it is thus proven that the father cannot communicate syphilis directly to the ovum. Hence, the infection of the ovum with syphilis, can only occur through a contagium, gaining access to it, through the blood of the mother.

Thus, as has been previously stated, the only way in which a father can communicate syphilis to the child, is by first communicating syphilis to the mother, who, after a sufficient time has elapsed for the contagium to pass from the point of inoculation, through the lymphatic vessels and glands to and into the general blood current, may then (and not before) communicate her disease to the ovum, the embryo or the foetus. We have in support of this position not only the legitimate deductions from all that is positively known in regard to the natural history of syphilis, but in an especial manner through its notable coincidence with a well-recognized clinical fact, which first finds also its scientific interpretation in the claim of a gradual physiological syphilitic infection through the medium of the lymphatic circulation. This fact was formulated by M.

* M. A. Fournier, Syphilis et Mariage. Paris, 1880. p. 26.

Ricord for his clinical class of 1847 as follows: "The mother may transmit constitutional syphilis acquired during gestation, *but if the infection of the mother takes place during the last three months, it is not certain that transmission is possible.*" Prieur, who also has especially treated on this subject, (quoted by Diday) writes thus: "*We have no example of hereditary syphilis in which the mother was infected during the last two months of pregnancy.*" Diday, after a full discussion of this point, says: "Thus it appears that *syphilis, contracted by the mother after the completion of the seventh month, has never produced the disease in the fœtus.*" Diday further remarks: "This latter term of seven months had already been fixed, *à priori*, by Abernethy."* So Diday, whose work on Infantile Syphilis was republished by the Sydenham Society of London, and which to-day ranks among the highest authorities on this and kindred subjects, says still further, page 29: "No authentic observation has been advanced to refute this law." And again on page 32: "Under similar circumstances a child born, apparently healthy, of a woman who had contracted syphilis in the eighth or ninth month only, *might be entrusted to a nurse without fear of communicating the disease to her.*" Diday thus assumes the greatest of responsibilities, on the strength of his experience in the truth of this, which he claims as an important clinical law.

In recalling the course of a syphilitic infection from the date of inoculation to the first positive evidences that the disease has entered into the general blood current, this interval will be seen to correspond completely with, and reasonably account for, the foregoing important clinical position concerning the so-called hereditary transmission of syphilis. This gives logical and clinical denial to the claim, (often made) that syphilis may be communicated by the father directly to the ovum without infecting the mother.

If then the infection can only be transmitted to the product of conception, through the medium of the circulation of the mother, we may now consider

the possible or probable date and degree of this infection. On the authority of Ricord, Prieur, and Diday, and "with no authentic observations to refute it" (Diday), we may venture to date the earliest infection of a foetal product, at not less than two months from the date of the infection of the mother. After this period has passed, all are subject to the same variations in point of severity, and rapidity of development, as those which characterize the disease in the adult. With such difference only, it may be claimed, as would necessarily result from the immaturity of the tissues involved and the late development of the lymphatic system in foetal life.*

Thus we may have the germinal elements of the fœtus, exposed to contact with the germinal syphilitic cells, in their association with the blood and nutritive juices of the mother, at any period, from the moment of impregnation to birth at full term. So we find the result of syphilitic infection, under such conditions, exactly such as might be inferred from a knowledge of the natural history of syphilis in the adult. The very greatest majority of cases of foetal and infantile syphilis die. Death of the embryo occurs at any stage of its existence, from its inception to delivery at full term. Death is also the rule, when evidences of syphilis are present at birth, and also in a large proportion of those born apparently

*Of the development of the lymphatic system, Rindfleisch says, "This is the third and (we say it with emphasis) the last chief constituent of the intermediate nutritive apparatus. Last, not according to importance, but according to time. Only when the development of the embryo ensues at a less rapid rate, when all the other organs have been founded and built up to a certain point, do we remark *lymphatic vessels*; still later, *lymphatic glands*. This doubtless is connected with the physiological significance of the lymphatic vessels as *drains for the surplus nutritive material*. As long as, upon the one side, no nutritive material is superfluous in all that is applied to the new formation, and as long as, upon the other side, the external coverings of the embryo are not too thick to hinder a free afflux toward without, so long we need no lymphatic vessels." And further he says, "We can say also the reverse, that *luxurious new formations, catarrhs and surface secretions of all kinds, must be produced where the lymph conveyance is hindered*; and we will find that this position in pathology is very frequently confirmed. (Ziemssen's Encyc., vol. iii., p. 137, 1875).

* A. Diday on Infantile Syphilis, Sydenham ed. London, 1859, p. 31.

healthy, but which present evidences of syphilis within the first few months. It may be assumed that the earlier and more active the syphilis of the mother, the more likely to produce the death of the fœtus, and *vice versa*, and yet cases are constantly occurring where the disease in the mother is so slight as to escape observation, and which have communicated well marked syphilis. Not all the blood of a syphilitic is capable of communicating syphilis. Syphilitic cell material is incapable of development into useful tissues. "Sufficient germinal material to carry on the process of life and growth must escape or growth would at once be arrested and life would cease."

Again, we know that, in a light form of syphilis, there are comparatively few accumulations of infective cells, such as are shown to produce the various active manifestations of acute syphilis. It is possible that even these, might be so held in the gland structures* and in the usual points of aggregation in the skin and mucous membranes, that their fatty degeneration and elimination, (especially with an efficient treatment), might occur in time to prevent their access, through the blood of the mother, to the tissues of the fœtus. In this way the fœtus might escape infection, even when characteristic evidences of active syphilis were present in the mother. There is abundant clinical evidence to prove, that treatment of the mother, previous to and during gestation, has resulted, to the infant, in complete immunity from syphilis. From what has been adduced in regard to the mode of infection of the *fœtus in utero* it will be seen that this may take place early or late in the course of gestation, and hence the fœtus may present with evidences of early or recent infection. The infant at times may be suffering from the earliest or the latest manifestations of syphilis.

In regard to syphilis of fœtal life Diday† says: "There exists in reference

* A similar inhibitory influence, exerted by the lymphatic glands in cancerous diseases, is cited by Virchow, in his *Cellular Pathology*, Am. ed., p. 221, with the following explanation. "We can account for this by no other supposition than that the gland collects the hurtful ingredients absorbed from the breast, and thereby for a time affords protection to the body."

† Diday on infantile syphilis Syd. ed. page 87.

to their mode of production, a fundamental difference between the acquired syphilis of adults, and congenital syphilis. In the former changes in the liver, in the heart, and in the lungs, or the brain almost always assume the form of tubercles; their progress is slow; they do not appear until a very advanced stage of the disease, and thus belong as much by their date, as by their character, to the tertiary period. The new born child on the contrary, presents them very early, *often even as the first symptoms of the affection*, of which it has received the germ *in utero*. In infants also, excepting when occurring in the liver, they assume, for the most part, the suppurative type and their progress is extremely rapid; which characters seem to class them amongst the affections of the secondary stage." Structural change, characteristic of syphilis, occurs in the bones. Wegner, of Berlin, was the first to recognize what he termed *osteo-chondritis*, as significant of syphilitic action in late fœtal and infantile life. This has since been fully verified as a characteristic syphilitic affection by observers in Germany, France and America. In this form of syphilitic bone trouble the germinal cells in the hyaline cartilage are found proliferated in excess, resulting in an undue lengthening of the diaphyses, and a subsequent interference with the normal development of bony material. All the long bones as well as those of the hands, feet, clavicle, ribs, etc., may be affected in this manner. Pollnow of Berlin, (quoted by Hill & Cooper) found osteo-chondritis in thirty-five out of fifty syphilitic fœtuses. In early infantile life a similar undue localized cell proliferation gives rise to osteitis and periostitis resulting in osteophitis, and general thickening from inflammatory action.* In osteo chondritis the undue proliferation, taking place in inchoate tissue, meeting comparatively no resis-

* For a full account of these forms of syphilitic bone disease in infants, with results of microscopical observation. Illustrated, see *Cornil on Syphilis* page 265 et. seq. (Am. ed. translated with notes and additions by Profs. Simes and White, University of Pa. Henry C. Lea, publisher, 1882). Also for tables of differential diagnosis between syphilis of the bones and rachitis, and as between syphilitic osteo-periostitis and non specific osteo-periostitis, see Taylor on Syphilitic Lesions of the Osseous System in Infants and Young Children. New York, 1875.

tance, results in a characteristic elongation of the diaphyses of the long bones. In the latter, the same unhealthy cell proliferation, occurring in structures which have already acquired some degree of stability, the mechanical interference which it occasions, results in osteitis and periostitis. Analogous, in a degree, are the osseous troubles of active, or so-called secondary syphilis in the adult, as described by M. Mauriac.*

Evidences of well defined syphilitic sequelæ, or lesions of so-called "*tertiary syphilis*," are rarely if ever met in the fœtus. In the adult, these lesions are always late, never less than a year or more from the date of infection, and always are characterized by a localized accumulation of the so-called *gummy material*. This is found in such situations, and under such conditions, that we are forced to consider its localization due, in every instance, to obstructed lymph channels.†

The imperfect development of the lymphatic vascular and gland system in fœtal and early infantile life (Rindfleisch) as well as the brief period, at the extreme possible limit, which could be assigned to its production, militates against the existence of such lesions in fœtal life. It is much more in accordance with what we know of the possible processes of action, or, so-called secondary syphilis in the adult, and the immature structures of the fœtus to attribute the rare cases when the fœtus has been claimed to present well marked tertiary lesions, (sequelæ) to the direct effect of an excessive accumulation of the imperfect cell material *characteristic of the active stage of syphilis*, rather than to causes which lack the conditions necessary to produce their equivalent in the adult.

True tertiary lesions (sequelæ) may occur, in early or late infancy, as a result of syphilis acquired in utero. Such lesions do not differ materially from those occurring in infants or children who have acquired syphilis subsequent to birth.

Dactylitis. This is characterized by a swelling of the phalanges and of the metacarpal and metatarsal bones and has been shown to result from an accu-

mulation of the so-called gummy material in and around the joints. Absorption of the bony structure results, in greater or less degree, and produces characteristic deformity. This form of tertiary syphilis is more frequent in children than in adults and may be the result of syphilis acquired in utero, during delivery, or in early infantile life. It does not differ from the same form of lesion in the adult. There is reason to believe that certain changes in the permanent teeth as first claimed by Hutchinson of London, are characteristic of syphilis acquired in utero, but of their developing at a late period in childhood, Mr. Hutchinson says: "As diagnostic of hereditary syphilis, various peculiarities are often presented by the others, especially the canines, but *the upper central incisors are the test teeth*. When first cut, these teeth are usually short, narrow from side to side at their edges, and very thin. After a while a crescentic portion, from their edge, breaks away, leaving a broad, shallow, vertical notch which is permanent for some years, but between twenty and thirty usually becomes obliterated by the premature wearing down of the tooth. The two teeth often converge, and sometimes they stand widely apart. In certain instances in which the notching is either wholly absent or but slightly marked, there is still a peculiar color and a narrow squareness of form, which are easily recognized by the practiced eye."

Interstitial Keratitis is also claimed by Hutchinson in the same way to be diagnostic of congenital syphilis.*

* "It has been the custom from time to time since Mr. Hutchinson made his observations to question the validity of his views, both as to the fact of interstitial keratitis being due to hereditary syphilis and the diagnostic value of the so-called characteristic teeth. Thus it has been asserted not only in England but on the Continent, and especially in Germany, that the disease may be the result of mal-nutrition in scrofulous and rickety subjects, and it has been maintained that the malformation of the teeth is the simple arrest of development in a perverted constitution from other causes than syphilis." Thus Maunther declares that "the German ophthalmologists have in no way been able to endorse the theory of Hutchinson;" while on the other hand, Förster, an eminent German authority, states at a still more recent date, just the contrary, and maintains that "the view that interstitial and parenchymatous keratitis is frequently due to hereditary syphilis, is constantly gaining more adherents." Bumstead & Taylor 4th ed. p. 702.

* Genito Urinary Diseases and Syphilis, p. 193 et seq., Bermingham & Co., New York, 1883.

† *Ibid* page 138.

Both these forms of trouble, resulting from a depraved condition, have been denied the especial significance attributed to them by Hutchinson and others. At present, resting solely on the results of clinical observation, as with almost, if not quite, all the questions of a syphilitic nature, there are contradictory statements based on clinical observation. We have as yet no reason advanced to show how or why the teeth and the eyes are thus affected, at periods varying from three to thirty years after birth, and that, possibly, with no preceding lesion indicating a syphilitic origin. We have only the general claims, that these troubles are of necessity syphilitic, because a syphilitic history has been observed to precede their occurrence in certain cases. It is not alone by the condition of the eye and the teeth that we may reasonably infer an hereditary syphilitic taint. "A child who has inherited syphilis and who perhaps has never shown marked evidences of disease in babyhood, becomes blighted in his development. His skin is coarse, earthy, pallid, perhaps showing cicatrices. He has a squared face, prominent cheek bones. Overhanging forehead and a sunken bridge to his nose. He looks prematurely old and grave, and may have a chronic catarrh, interstitial keratitis, ulceration of the throat, or cicatrices of the mouth or soft palate. The teeth are irregularly set and defective," etc., etc.*

These deformities, lesions, and all other unexplained evidences of interference with the normal development of the various regions and tissues involved, which can in any way be associated with syphilis in the parents, either by known facts or by reasonable inference are, or may be claimed to have resulted from what is commonly termed a syphilitic diathesis, dyscrasia or cachexia; that is to say, in the present state of our knowledge of such obscure disturbances of growth and nutrition, they are not directly traceable to local syphilitic deposits, such as have been shown to produce characteristic syphilitic sequelæ.

The test by treatment, alone can be relied upon to solve the question as to the

dependence of presenting abnormal conditions, on congenital syphilis.*

Besides infection in utero, as a cause of early constitutional syphilis in infants, we may have the disease communicated directly from the mother, with a recent initial lesion of syphilis on the genital region, to the infant, during delivery. Later, the infant may acquire syphilis directly from the mother, through contact with mucous patches, subsequently developing, especially in the mouth or on the lips. Again, syphilis may be communicated to the infant through the medium of a nurse suffering from active syphilis. Thus, a mucous patch or even a crack in the nipple in such case might communicate syphilis. And, *per contra*, the syphilitic infant is equally capable of communicating syphilis to the nurse* through the act of suckling.

The following instance is quoted by Diday (op. cit. p. 168): "A soldier communicated syphilis to his wife. She became the mother of a child, which presented a few days after birth symptoms of the same disease. It had especially ulcers of the mouth, and died. The nurse to whom it was intrusted contracted the same disease from it, and could only be cured by mercury. A child which she was suckling also became infected, and was in great danger. The mother of this child showed signs of intense constitutional syphilis. A young girl of eighteen who had had the care of this latter child, had in consequence of her relations with it, pustules, first about the mouth, and then about the vulva. Her health was restored by mercury. The mother of the second child had taken another foster mother. The disease developed itself in it, and it infected its sister, a girl of ten years of age, and who, probably from kissing it, presented symptoms first about the mouth and then on the genital organs. The mother of these last two children, aged 50, having had much intercourse with them, had herself symptoms for the cure of which anti-syphilitic treatment was necessary."

Seven persons were thus directly or indirectly infected with syphilis, through the medium of a single syphilitic infant.

Syphilis may also be communicated to the infant through the Jewish rite of circumcision. Formerly more than now, among the lower classes, the operator sometimes placed the penis in his mouth after excision of the prepuce. Instances of this sort, where the operator was subsequently proven to have mucous patches in his mouth are recorded.

Syphilis may also be acquired by the infant through vaccination.

* Van Buren & Keyes Genito-Urinary Diseases, with Syphilis, page 655.

* See Otis or Genito Urinary Diseases and Syphilis, Bermingham & Co., 1883, p. 179.

In these and all other instances of syphilis acquired during or subsequent to birth, the course of the disease and of its sequelæ will be found completely in harmony with that of syphilis in the adult.

APPEARANCES AND SYMPTOMS CHARACTERISTIC OF CONGENITAL SYPHILIS.

In probably the very largest proportion of cases of maternal syphilis, death of the embryo occurs at a very early period, and it is thrown off, presenting no marks capable of distinguishing it from those cases when its death has resulted from non-syphilitic causes.*

At about the sixth month abortions are frequent, and even then the fœtus may present without any especial evidences of syphilitic taint. Again it may be found in various stages of maceration or of decomposition. Later it may present various eruptions, and unmistakable evidences of syphilis, in the visceral changes which have occurred.†

* "Flint indeed lays it down as an invariable rule that pathognomonic affections are never discovered before the seventh month."—Hill and Cooper (op. citat), page 65.

† "In 153 syphilitic fœtuses Nevins never found any skin affection earlier than the eighth month of intra-uterine life."—*Ibid.*, page 339.

‡ Frankel claimed in 1873 that abortions as a result of syphilis were due to its localized influence on the placenta. The microscopic appearances as well as the microscopic examinations, in many cases of abortion when syphilis was present or inferred from circumstantial evidence, appeared to prove their claim completely. The explanation of the manner in which the syphilitic influence is shown to affect the placental tissues and interfere with nutrition of the embryo is not only apparently conclusive, but is in entire harmony with the views of syphilitic infection and development advocated by me since 1870. Frankel states "that owing to the irritation caused by syphilis, proliferation, in a greater or less number of the placental villi begins in the cells, which in the normal stroma of the villi are only sparingly found. Their nuclei and still later the cells themselves, undergo manifold division; and the increase in the number of the cells is attended by an increase in their size. This proliferation is chiefly seated about the vessels of the villi and about the deeper ones of the parenchyma, as well as around the more superficial, and also about the fine capillary network lying directly beneath the epithelium. Homologous products arise in every tissue of the villi in consequence of this hyperplasia-cell proliferation of connective tissue in the stroma, epithelial proliferation in the epithelial covering. The cell proliferation causes compression of the vessels, interferes with the circulation, and finally

This apparent freedom of the mother from syphilis while evidences of syphilis are present in the child has given rise to a claim that the mother may bear a syphilitic child without herself being syphilitic. A characteristic lesion of the active stage of syphilis occupying only a portion of the placenta and thus permitting the child to live, as claimed by Frankel, might easily escape observation, and the mother, presenting no other salient evidence of syphilis, be pronounced absolutely free from the disease, while her infant bore unmistakable marks of syphilis. A single characteristic mucous patch in the mouth of such a mother would stamp her as syphilitic. Why not a single characteristic lesion of the ovary? Such an explanation in addition to the claim of possible concealed mucous patches, would render the explanation of an apparently healthy mother giving birth to a syphilitic infant and suckling it without danger of inoculation, much more in accord with what we know of the behavior of syphilis than the claim that the ovum has been directly infected by the semen, while the authorities claiming such a possibility at the same time deny any contagious property in the seminal fluid.

SYPHILITIC PEMPHIGUS.

The presence of a pemphigoid eruption

leads to thickening of their walls, and obliteration of the vessels themselves. The villi are filled up with cells, become hyperdistended, plump and thickened. The vascular spaces into which they dip, become filled up and narrowed, and in the most advanced stages they entirely disappear. By this means and by the proliferation and thickening of the epithelial covering, the interchange between the maternal and fetal blood is interfered with, and finally is wholly obstructed. The villi having thus lost their function undergo fatty degeneration, the cells of the stroma and epithelium become filled with fat granular and finally break down with granular matter. If the process is diffuse and continuous over the whole placenta, the fœtus has in the meantime perished; if limited to circumscribed foci it may have continued to live. . . . Of seventeen mothers, fourteen were said to be free from disease at or before their confinement, one died, the autopsy revealing no syphilitic lesion; two mothers became diseased (*i.e.* showed evidence of syphilis), one on the fifth day and the other during the fourth week after confinement."

Ueber Placentar-Syphilis. Arch. F. Gynaek. Berlin, B. V., s.s. 1-54, 1873. (Quoted by Bumstead and Taylor, 4th Ed. Art. on Affections of the Placenta. Page 751, et seq.)

tion on the fœtus or the newly born, has usually been accepted as diagnostic of syphilis. Cazenave believed it to be simply the result of the debilitation caused by syphilis, and not a specific expression of that disease. While Paul Dubois asserted its purely syphilitic origin. Diday (at page 72 of his work on Infantile Syphilis) gives a resume of the discussion in the French Academy between these distinguished authorities, and follows with his own conclusions. These make pemphigus in the fœtus or infant *not an immediate result of syphilis, but an indirect sequel of the exhaustion which that disease produces*. This opinion, Diday says, "obtained many suffrages" among the members of the French Academy.

If this is true of the pemphigus of the fœtus, or the infant, it is evident that other causes besides syphilis might produce the debilitation, and hence, *taken by itself*, it cannot be pronounced as certainly diagnostic of syphilis, as has been the habit of many physicians to do. Pemphigus is not recognized as a syphilitic eruption in the adult, and forms the only exception (if it be an exception) to the similarity of eruptions of syphilis at every period of life.

We have the macular, the papular (including the mucous patches), and pustular eruptions, various degenerations of the viscera, and early lesions of the bones, and also of the nails presenting in the infant at birth. This is in proof that the same systematic course has been followed in the development of the disease in the fœtus as in the adult, affording to a useful degree if not equally, (when any of the above lesions present) the means of estimating the date and degree of infection.

Among the signs, accepted as diagnostic of congenital syphilitic infection, is the *general appearance* of the infant at birth. In many cases there is what has been termed a look of "little old men"; the skin hangs loosely and in wrinkles and the face expresses a languid anxiety.

The color of the skin is also characteristic, being of a yellowish brown color, unequally laid on—a sort of spottiness in appearance, which is deepest in color on the more prominent points of the face. Diday, in referring to this especial condition, says: "On consider-

ing the peculiar nature of this discoloration, the early period of the disease at which it is observed, the puffiness, the prostration by which it is accompanied, and the rapidity with which, in common with its complications (apparently so deep-seated), it disappears under the influence of anti-syphilitic treatment, I was led to ask whether this condition, so distinct from the manifestations of syphilis, (properly so-called,) might not depend upon the *chloro-anæmia*, the existence of which Ricord has pointed out as coincident with the first outbreak of secondary symptoms, and of which every writer on syphilis has seen numerous instances." He further says: "There is surely no reason why the same specific cause should not produce the same effects, at whatever age it may be in activity. *The semiological evolution of syphilis is so exactly similar in new-born children and in adults* that it would not be surprising to find this characteristic also common to both." Diday (op. Citat, p. 87).

SYPHILITIC ROSEOLA.

Next in order of frequency, the roseolous eruption presents. In the newly born, this consists in patches and circumscribed rounded spots of various sizes, ranging from a quarter to half-an-inch in diameter, at first rosy in color and most thickly developed on the abdomen. This follows the same course as the syphilitic roseola of the adult, fading under pressure and finally leaving a coppery stain. This is next most frequently accompanied with or followed by a coryza due to inflammatory trouble of the nasal passages, producing the *snuffles*, an interference with the respiratory efforts, and often becoming a source of much embarrassment in nursing the child. Diday was the first to point out the fact, since so often verified, that this trouble is due to the development of the later papular eruption, appearing here as mucous patches of greater or less extent, first causing obstruction by the swelling they occasioned, and then, after ulceration of the surfaces had taken place, giving rise to an acrid and contagious purulent discharge. The voice of the infant, so often changes to a hoarse croupy cry, that it is considered characteristic of the syphilitic infant. This,

Diday very reasonably shows, is the result of the same papular trouble developing in the mucous membrane of the larynx. The discharges become profuse and mixed with blood and at the same time in some instances a distinct cutaneous papulous eruption appears, often going rapidly on to ulceration, especially about the buttocks. In the moist places flexures, etc., assuming the character of mucous patches, differing only, in such, from the adult, by their more rapid and extensive development, consequent upon the delicate structure of the infantile skin, occasionally onychia of fingers and toes presents, also alopecia. The coryza may, and frequently does result in loss of the nasal septum and contiguous bones as a result of the extension of the ulcerative process of the mucous patches to the periosteum of these parts. Tubercular syphilides, identical with those in the adult, may occur, indicating in the same manner a later stage of the disease. Gummy deposits may occur, localized or diffused, *in any part of the physical structure*, exactly as they have been shown to do in the late syphilis of the adult.

If not present at birth, the usual date of appearance of syphilitic symptoms in the new born, when at full term, is from two to six weeks. Diday has collected statistics of 158 cases in one series. Of these 131 presented symptoms before the end of the second month. In 86 they appeared before the 30th day. In another series of 105 cases, where more minute inquiry was instituted, 45 were attacked before the 15th and 10 before the 8th day. From this Diday concludes "1st, that the greater proportion of outbreaks of syphilis in new-born children occur before the completion of the first month of their existence. 2d, that when the third month is once past, there is no longer much probability that any symptoms of this kind (active or secondary) will manifest themselves."* In other words Diday would have us understand it as his belief, that, as in syphilis of the adult, the period between infection and the appearance of earliest constitutional manifestations is *within certain definite limits*. It is, then, reasonable to infer that lesions presenting (sub-

sequent to such limits) would most probably belong to the period of sequelæ, the secondary or active period having passed in utero; a matter of great practical importance to decide, as the secretions from syphilitic sequelæ have been proven to be free from any contagious property.

The length of time during which a mother, having acquired syphilis, may continue to transmit it, *as syphilis*, to her offspring, is yet unsettled, yet quite a large amount of clinical material, bearing on this question, has been presented in the standard works on syphilis and in the journals, but the greatest part is of the crudest and most unsatisfactory character, lacking important facts and the circumstantial evidence which alone could give it value in deciding contested points. On the one hand the distinguished Dr. Colles claimed "that a third child will be infected more quickly than the second, the fourth more quickly than the third," etc. Diday, on the other side, says: "Nothing in my observation has confirmed this opinion." He then presents cases and arguments to show that there is a *law of decrease* in the foeticidal action of syphilis. He presents, among others, the following case which is especially valuable, 1st, because it was carefully observed by Messrs. Doyon and Dron at the hospital of l'Antiquaille of Lyons, and well-known as competent authorities on syphilis. 2d, because it was a study of the natural history of the syphilitic influence under certain conditions, none of the parties involved having been subjected to any specific treatment:

"A woman named D.—æt. 46, came there on the 21st of July, 1853, to seek treatment for a syphilitic affection which she had contracted eleven years previously from a sucking child which had pimples on its body and limbs, and abundant mucous patches about all the orifices. This woman had, herself, pimples upon the breasts, then in the vulva, alopecia, glandular swellings at the nape of the neck, the groin, and the axilla. Her husband, a churchwarden, had had connection with her, and having been previously healthy as well as moral, saw, at the end of a fortnight, papulæ develop themselves upon his scrotum. He had next the disease in his throat, and ulti-

* Diday, *op citat* pp. 101-2.

mately symptoms analogous to those in his wife.

But this woman, who had previously had four children (three of whom are still alive while the fourth died of convulsions), again became pregnant, after having infected her husband. She was delivered at the full time in 1844, but the child was small, yellow and wrinkled. It had large pustules in the left axilla, and died when a fortnight old. Another pregnancy in 1846: the child was born at full time. It was puny and the face wrinkled and old-looking. A month after birth pimples appeared about the anus, the genitals, and the mouth. It died at the age of two months. The last pregnancy occurred in 1848. This time the child, born at full time, lived. It is now five years old, but its health is bad, and there is little prospect of saving it. It must be noticed that *neither the father, the mother, nor any one of these three new born children has ever undergone specific treatment.*"

"In this case," Diday remarks, "the lateness in appearance of the symptoms, as well as the duration of extra-uterine life, *gradually expand, in the most regular progression possible, with each later born child.*"

It is rarely that we meet with a case more entitled to respectful consideration than the foregoing. It is a history, by experts, of the natural operation of syphilis in the mother, as transmitted to her offspring, from the early days of the constitutional affection, through two succeeding pregnancies, and to a point where the contagious element of the disease had so far disappeared that it was no longer capable of transmitting characteristic syphilitic disease to the child. That the health of this last child was bad, was not remarkable, when the mother, at his birth five years previous, had been for at least three years the subject of active or so-called secondary syphilis, and was at the date of birth of this child probably suffering with syphilitic sequelæ, for which, five years later, she sought treatment at the hospital L' Antiquaille; but, *no evidences on the child, of syphilis, as a specific disease, were suggested as having been discovered by Doyon and Dron at the date of examination.*

According to evidences previously presented the limit of syphilis, as a

contagious disease, in the male, *does not exceed four years.*

It has been often stated that syphilis in the female, retains its power of transmitting the disease, longer than the male. Instances are quoted where children have been born presenting evidences of active syphilis, many years *after* the original infection. It has also been claimed, that the syphilis in such cases, may be communicated to children begotten by healthy men, while the disease is too much attenuated to convey it to the fathers of such children; for example: Van-Buren & Keyes, page 661, say, "Thus, with the woman, syphilis may have been acquired from a former husband. With him, as is usual, she miscarries several times. Finally, a child is born with eruptions on its skin, and visceral syphilis from which it dies in a few days. The next child is born, perhaps fat, and apparently healthy. It continues so for two or three weeks, and then gets the snuffles and cutaneous symptoms. Neglected, it dies; or, under careful management, it gets well. The next child seems healthy. Does not develop any marked disease during its infancy, but, growing up, may have the syphilitic teeth, interstitial keratitis, etc. After the birth of this child, the husband dies, and the wife marries a healthy man. *She has lost her power of communicating syphilis to him.* They have a child, who appears and continues healthy, but who, at some time, during boyhood, has evidences, about the mouth, the bones or the glands, of mild tertiary disease, the father remaining healthy." This statement expresses very succinctly the opinions of accepted authorities, and also the prevailing impression, that all the effects of perverted nutrition, which present, in children born of parents once syphilitic, are due to the direct influence of syphilis, as such, *and are evidences of the continuance of syphilis as a contagious disease, in the system of one or both parents—and the possibilities of such influence being of indefinite continuance.* It seems most desirable to distinguish between syphilis, as a disease capable of transmitting syphilis by contact, and those forms of trouble which result from the debilitation caused by syphilis, but which entirely lack the specific element. Nothing is better established than that various forms of

disease resulting from innutrition and perverted nutrition, follow in the wake of syphilis. It is also the fact, that, wherever evidences of adynamic disease exist, in the fœtus or the infant, the barest suspicion of antecedent syphilis, in either parent, is sufficient, with many physicians, to warrant the assumption of syphilis as an active disease, in one or both of the parents.

Diday believed in the regular and rapid elimination of the contagious element of syphilis. *unaided by treatment.* I have cited a case in proof of this position. As a possible exception to this view at page 145 (Diday op. citat.) he presents the following :

"In 1843, Campbell* was consulted about a lady who was pregnant for the fourth time. Her first child was born at eight months, and lived only eleven days. The second was born at seven months, and only survived an hour. The third pregnancy miscarried at six months. Campbell convinced himself that she never had symptoms of syphilis. The husband confessed that *seventeen years before marriage*, he had had syphilis *several times*, and which, *although assured to the contrary*, had never been cured. *At that time he showed no trace of disease.* Mercury was administered to both parents. Then they had a healthy little girl born at eight months."

This is a very fair sample of the clinical material claiming syphilitic infection many years after acquirement, which figures in systematic works on syphilis, and quoted from one author to another *ad infin.* Here syphilis would have existed as a contagious disease for seventeen years, *if the husband had syphilis.* By his own account, he had it *several times.* And notwithstanding this statement, (which was *prima facie* evidence of his entire incapacity as a witness)—and the assurance, presumed from his medical adviser, to the contrary ; also the long period intervening (17 years);—notwithstanding all this, and the entire absence of any evidence of syphilis in him, or in his wife, the case is quoted to show that the repeated miscarriages were the result of syphilis.

In this case, mercury was finally administered to both parents (to what

* The "London and Edinburgh Monthly Journal," 1844, p. 514.

extent is not stated). Subsequently a healthy child was born. If this proves anything, in such a case, it is, that there are conditions, producing miscarriage, which are non-syphilitic, and yet are benefited by the use of mercury. For, while it is a fact that, as a rule to which there are few exceptions, mercury is a most valuable and efficient agent in the cure of syphilitic lesions, and that it is greatly esteemed as an agent in clearing up diagnosis cases of syphilis which have been in doubt. It by no means militates against the equally well-known property of mercury to palliate and to cure many diseased conditions which are confessedly of non-syphilitic origin. Chief among these are the difficulties depending upon inflammatory plastic effusions and deposits, mercury inducing, just as in syphilis, a fatty degeneration of the plastic material causing fibrinous deposits, adhesions, etc., especially in and upon the serous membranes. Its beneficial influence on all the secretions is also most marked under judicious administration, and while its value in the treatment of syphilis is inestimable, it is not conclusive proof that the disease in question is of syphilitic origin or nature. In order to constitute such proof, it must be flanked by other evidences of syphilis, such as did not certainly exist in the case reported.

The eighty-seven cases reported by M. Fournier, are, it appears to me, a sufficient denial of the possibility of infection after the fourth year, at furthest, in syphilis of the male. There is no good reason to suppose that a disease, which has been so amply demonstrated to be one pursuing a definite course, which should so uniformly lose its infective property through the influence of time alone, as shown in all the well authenticated records of cases, should differ materially, in that respect, in regard to the sex of the individual infected. Even accepting the possible mistakes of attributing to syphilitic diseases troubles which are the effect of non-specific causes, Bumstead and Taylorsay, page 742 (op. citat.) : "The number of syphilitic children which a woman may produce varies. In some cases of mild character, healthy children may follow the birth of one or two infected ones. In other cases, particularly in those partially or entirely untreated

there may be six or more. As a rule," say they, "after a lapse of six years the influence of the disease has become so feeble that the risk of transmission is extremely slight." The exact period at which the power of infection ceases is not so important to be determined in the female as in the male. As compared with the males, few females candidates for matrimony have, or have had, syphilis. Yet great value would pertain to *reliable* statistics showing the extreme limits of contagiousness in the secretions of females the subjects of syphilis. The fact that such continue to miscarry, to produce macerated or imperfect, or decomposed or pemphigoid children, is not of necessity a proof of the persistence of the contagious property. The fact is that phthisis, or rachitis, or any one of the many manifestations of scrofula, or any other results of inefficient or perverted nutrition in the infant or the child, is not of necessity the evidence of a continuance of the syphilitic diathesis in the parents at time of the birth, much less a proof of the pre-existence of syphilitic disease in one or both parents without other evidence to support such charge. Disease in the infant, to be valid proof of its syphilitic nature, must present characteristic syphilitic lesions. Syphilis in the fœtus and syphilis in the infant has been practically shown to follow the same course as syphilis in the adult, consequently, to be certainly diagnostic of syphilis, the fœtus or the child must present lesions which, with the difference in the maturity of the structures excepted, characterises the presenting stage of the disease in the adult. The crucial test of the accuracy of the diagnosis, in case of doubt, would be the communication of undoubted syphilis through accidental inoculation of a known healthy individual with the secretion of some lesion on the suspected subject. Such verification would doubtless rarely occur, but if among the frequent inoculations which take place where the nurse is infected with syphilis through the lesions in the mouth of a syphilitic infant, it could be incontestably proved, *even in a single case*, that the disease in the mother *was more than four years old*, then, and not until then, could it be claimed that existence

of the infection of true syphilis is more prolonged in the female than in the male. A careful study of the dates at which infection has occurred in the parents, in all cases of accidental inoculation of persons by syphilitic infants, would soon result in a definite knowledge of the difference, if any, in the duration of the infective period of syphilis between males and females. As a basis of comparison for such statistics the recent observations of M. Fournier would be available. He states that *he has never established a case of transmission of syphilis by paternal heredity exceeding the maximum of three or four years.**

PROPHYLAXIS.

The most important period at which this is practicable is while young men contemplating marriage are under professional care on account of recently acquired syphilis. The interdiction of marriage should be absolute until after a full and systematic treatment. The absolute necessity of this course should be insisted on by every medical man having the professional charge of such cases. Marriage having taken place, however, before the completion of a systematic and successful course of treatment, or when symptoms of active syphilis are present, either in the shape of open lesions, indurations, gland enlargements, papular eruptions, alopecia, or onychia, then, if the syphilitic signs of such manifestations were clear the wife should be examined to ascertain as far as possible whether or not she had been infected with syphilis. If the evidences were in favor of this accident having occurred, she should be put on a similar course of treatment. If no evidence of syphilis in the wife can be discovered and yet she has been impregnated, the same treatment will be advisable, (modifying it in such a way, by administering mercury by inunction instead of through internal administration, in order to prevent an undue action of the intestines, which might favor abortion.) This to be continued until at least three months subsequent to the delivery of a healthy infant. If, notwithstanding this, positive evidences of syphilis are present, either in the mother or in the child,

* Fournier, Syphilis et Mariage, p. 132.

then the treatment to be continued in the same manner, and for at least the same period as prescribed for the husband. Repeated abortions, not directly traceable to known non-specific causes may, under certain circumstances, be considered as evidences of a mild and previously unrecognized syphilis, and a mercurial course adopted tentatively: bearing in mind the fact that the judicious use of mercury may rectify a disposition to abort, even when the difficulty has not the most remote connection with syphilis.

The possible infection of infants through the medium of nurses either affected with constitutional syphilis or having an open initial lesion of the nipple, or at some point likely to favor contact with its secretion, must not be overlooked. The selection not alone of a wet nurse, but of any nurse who is brought into contact with young children, should always be most careful, as bearing upon the possible presence of syphilis, in a latent or in an obscure form, or in a hidden lesion. Unusual gland enlargement in the groins, in the cervical or epitrochlear regions, should always excite suspicion, and, as a rule, rejection, and whatever the other evidences against the possibilities of syphilis, the most rigorous examination of every part of the body should be insisted on. The apparently healthy infant, usually brought forward to prove the health and nursing qualities of the nurse, is not rarely made to do a similar duty for various would-be wet nurses, and, besides, it must be borne in mind that any infant, however healthy in appearance, may develop active syphilis at any time within two months after birth from an infection acquired *in utero*.

EVIDENCES AND SYMPTOMS OF INFANTILE SYPHILIS.

The evidences of syphilis in the embryo are not certainly pathognomonic. The macerated foetus may have come to its death from purely non-specific causes. It is only when its death can, circumstantially, or by legitimate inferences, be attributed to syphilis, that the macerated foetus becomes significant of the effects of that disease. Abortion, while a common result of syphilis, is more often due to

non-specific influences. Decomposition of a foetus at any stage, while strongly suggestive of syphilis, is not seldom the result of causes entirely foreign to it. It is only pathognomonic when supported by direct or circumstantial evidence favoring the assumption of a syphilitic origin. Syphilitic eruptions are very rare before the 7th month of intra-uterine life.

Rindfleisch says, "As long as upon the one side no nutritive material is superfluous in all that is applied to the new formation, and as long as upon the other side the external coverings of the embryo are not too thick to hinder a free afflux toward without, so long we need no lymphatic vessels." And he further says, "We can say also the reverse, that *luxurious new formations, catarrh, and surface secretions of all kinds, must be produced where the lymph conveyance is hindered.*" It would be then just in the latest months of intra-uterine life, when the external coverings of the foetus become less adapted to a "free afflux toward without." And when to the normal nutritive material the rapidly proliferated new material of syphilis is added, *thus hindering the lymph conveyance*, what is more probable than that "surface secretions of all kinds" should then be produced. It is just at this time that the pemphigoid eruptions are formed, and that syphilitic infants are born covered with "surface secretions" in the form of blisters, milium vesicles, and bullæ. These, as with the syphilitic pemphigus, so-called, might then be accepted rather as the secondary result of syphilis as claimed by Cazenave, and not true syphilitic eruptions. It is only on the appearance of the true syphilitic roseola that we have the first reliable evidence in the lesion manifestation itself that the case is one of syphilis, this being the legitimate effect of the development of syphilis, and corresponding to a known and diagnostic stage of the disease in the adult. While, as in the adult, we are not able from this alone to determine its syphilitic origin, when it is associated with or succeeded by the mucous papule, or the papular eruptions in any other stage of development, we are warranted in positively claiming its syphilitic nature.

Subsequently to the birth of the infant it may be stated that the disease is practically the same in its appearance and development, making allowance only for the differences naturally resulting from the lesser degree of stability in the tissues of infantile life.

TREATMENT OF INFANTILE SYPHILIS.

One of the most cogent of all the arguments brought forward to prove the practical identity of syphilis in the embryo, in the infant, and in the adult, is that one and the same mode of treatment has been found most applicable to and efficient in all. Mercury judiciously administered has been proven the most potent of remedies in the adult infected with syphilis, at any and every stage of the disease. It has also been shown capable of extending its beneficial influence, through the blood of the mother, to the arrest and cure of the fœtus infected with syphilis. For the infant, of whatever age, suffering from a syphilitic infection, hereditary or acquired, in whatever form, we have but one efficient and universally acknowledged remedy, and that still is, *MERCURY*. Under the depressing effects of a syphilitic infection, more, if possible, than in any other disease, we have need of all that can be done in the way of constant suitable care—suitable hygienic surroundings, suitable food. But with all these in perfection, we find ourselves comparatively helpless in our best attempts to cure the infant infected by syphilis. *Mercury*, in some form, must be introduced into the system of the infected infant. It is not therefore a question of the medicine—the *agent* we shall use, but the *form*, most easily assimilated, with the least disturbance to functions in infantile life.

The digestive apparatus of the infant is especially to be respected if any method of treatment is to be curative, and while it is possible to introduce the mercurial agent through the stomach, it is the experience of the most distinguished authorities that it is by far better to avoid any possible disturbance of the digestive apparatus by introducing it through the skin of the infected infant. This is done by *inunction*. Of its value and mode of application, Sir Benjamin Brodie says: "The mode in

which I have treated these cases for some years past has been this: I have spread mercurial ointment, made in the proportion of a dram to an ounce, over a flannel roller and bound it around the child once a day. The child kicks about, and the cuticle being thin, the mercury is absorbed. It does not either gripe or purge, nor does it make the gums sore, but it cures the disease. I have adopted this practice in a great many cases with the most signal success, but I have not seen a case where this method has failed." Bumstead and Taylor quote this passage with approval at p. 779 (op. citat). Again he says: "Very few of the children who have taken mercury internally have recovered, but I have not seen a case in which the method I have pointed out has failed." Diday, p. 249. (op. cit.). Van Buren and Keyes recommend the substitution of the oleate of mercury to be used in the same way as less uncleanly and less likely to irritate the skin of the infant. My own plan has been to use the mild mercurial ointment diluted with an equal quantity of lard or vaseline; and this I have never known to produce irritation: on the contrary, it is a soothing application in excoriations or sores on the child's skin. A small quantity about the size of a pea may also be advantageously rubbed in, preferably on the back and chest, with the well warmed finger which, if desirable, may be protected by a soft glove. From half a dram to a dram of the ointment may be rubbed in daily, if the band is not worn and continued at this amount unless the occurrence of the mercurial factor be recognised. Colles states that he never saw mercurial inunction produce erythema in new-born children. Cullener is of the same opinion. Diday quotes these authorities in favor of mercurial inunction, and says, "the delicacy of the integument does not contraindicate this mode of treatment."*

The skin should be gently and thoroughly cleansed with castile soap and warm water every other day during the entire treatment, and this should be continued, not only as long as any manifestations of syphilis are present, but with intervals of a week every month for six months afterwards. In cases where

* Diday, op. citat, p. 248.

great secrecy is necessary, the treatment by inunction is impracticable, and especially if, as is sometimes the case, the mother herself is kept in ignorance of the nature of the disease. In such cases, or in those where, for some other satisfactory reason, the treatment by inunction is declined, mercurials may be introduced by the mouth of the child or by means of bathing twice daily with a solution of the bichloride of mercury, while distinctly giving the preference to inunction. Diday,* when internal treatment is desirable, recommends a solution of the bichloride of mercury, one-thirtieth of a grain in a teaspoonful of water three times a day, increasing it, if necessary, to the twentieth, until some desirable result is effected. Bumstead and Taylor suggest the administration of the bichloride in similar dose and form, and also as a substitute—mercury with chalk, rubbed up with sugar, in doses of from one-third to one-half a grain daily—with the following remarks: "The internal administration of mercury, as in one of the accompanying formulæ, will sometimes succeed, but too frequently irritates the bowels; and in my own experience (Bumstead) affords far less satisfactory results than the method by inunction." The above quotations indicate very fairly the impressions among authorities everywhere in regard to this matter. My own belief is, that if mercury is given internally to very young infants, it must be in doses so small, (if we would avoid setting up a serious intestinal trouble), that their efficacy is thus, to say the least, very questionable. Exceedingly small and frequent doses, as by the trituration of metallic mercury with the sugar of milk, would appear to me to promise better results than a full dose two or three times a day. I am free to confess, however, that my experience in the internal administration to very young infants for the cure of syphilis has been very small, as, while I have occasionally used it as an adjunct, I have relied, in almost every instance, on the treatment by inunction. In cases where there is reason to believe that the presenting difficulty is due to the results of syphilis, that is, belonging to what is known as the tertiary period, the iodide of potassium alone, or in combina-

tion with mercury, should be administered in the same manner, and in doses proportioned to the age of the child.

There is a disposition among physicians, only too prevalent, to attribute any deformity, dyscrasia, or any form of mal-nutrition, to the *direct* effect of syphilis as communicated by contagion. My own conviction is fully expressed by Bumstead and Taylor at page 736, (op. citat), thus: "*Syphilis always transmitted as syphilis*, although the cachexia induced by it undoubtedly predisposes the infants to affections of this kind (scrofula phthisis or rickets) *just as any adynamic disease may do.*" Syphilis is characterised chiefly, it may be even said solely, by the contagious property of its lesions. *Without the contagium there is no syphilis.* Its effects, whether the result of congenital or acquired *which lack that element*, are as distinctly sequelæ, which may or may not occur, as the paralyzes following diphtheria. It may then be safely claimed, that true syphilis is never transmitted through the influence of tertiary lesions (sequelæ) nor from any cause beyond the second generation.

CONCUSSION OF THE SPINE.

(RAILWAY SPINE.)

BY

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Concussion of the spinal cord if at all serious is apt to be followed by symptoms which develop very quickly, and in consequence we find back pain referred to the dorsal or lumbar region, the back of the legs or thighs; a want of power, an atony of the bladder and rectum, and various ocular symptoms. There is rigidity of the back and the slightest movement causes intolerable pain, and ordinary walking causes great suffering. If the patient be told to jump he will complain of increased pain, caused by the jar, and he suffers after the slightest motion. The loss of power is extremely variable and may vary from simple

* Diday, op. cit., page 260.

weakness to complete paraplegia, and electrical reaction of the muscles is abased or lost.

Erb's Classification.—Erb* makes the following divisions regarding the appearance of symptoms :

"*A. General and very severe symptoms at the instant of injury. Death in a short time. Severe form of shock.*" (Immediate complete paralysis. Disturbance of consciousness, involuntary discharges, depression of pulse, and arrested respiration. Speedy death in a few days. Usually from crushing or other severe injuries.)

"*B. Severe symptoms at the moment of receiving the injury. Cure in a short time. Slight shock.*" (No loss of consciousness, usually paraplegia, pains, anæsthesia, increased reflexes, rapid improvement in a few days and speedy recovery.)

"*C. Severe symptoms at the first, followed by a protracted illness of some years' duration ; recovery in most cases.*" (Shortly after accident progressive paralysis following weakness of all extremities, pain in back, girdle band, light anæsthesia, mental disturbance, vomiting. Slow and gradual improvement.)

"*D. Very slight symptoms at the beginning ; a severe progressive spinal disease develops after a longer or shorter time. Result doubtful.*" (Primary nervous disturbances of a light grade, weakness, mental confusion. After a short time severe symptoms develop. Emotional depression, bad sleep, weakness and ataxia of legs, pain and paræsthesia, weakness of bladder, atrophy, with pronounced meningo-myelitis.)"

The above are the varieties collected by Erb, and the symptoms are familiar and well marked. He is disposed to take a rather favorable view, except in those cases in which bed sores and other serious evidences of cord disintegration are expressed.

A gentleman sent to me recently by Dr. Howard of Montreal, presented grave symptoms of speedy development as the result of an apparently trifling spinal concussion which seemed almost out of proportion to the injury. The Rev. Dr. L., a heavy man weighing 212 pounds, while walking upon a wooden

sidewalk, caught his toes in a hole and fell somewhat violently. This was about eighteen months ago and since that time to the present (Jan. 1883), a train of very serious expressions indicative of resulting organic disease, have made their appearance. He did not lose consciousness after the fall but felt dizzy and sick for ten minutes or so, and beyond a slight bruise of the left hand, which he had thrown out to save himself, he suffered but little inconvenience. About three weeks after the accident, however, he began to feel cramps in his left hand, the fingers becoming rigid, as well as great pain in the back especially in the lumbar region, but subsequently it extended upwards. This was associated with paroxysms of intercostal neuralgia, with attacks of coughing and *besoin de respirer*, which at times amounted to distressing dyspnœa. When I first saw him in January there was some loss of power in both lower extremities, especially the left, and he walked with difficulty. There was no anæsthesia, but paræsthesia, upon the line of the last dorsal vertebra, the legs were generally atrophied and his gait was characterized by ataxia, rather more marked on the right than on the left side. His superior extremities were involved and the left hand and arm are especially weak, and it causes him great distress and pain to raise them ; he cannot button his clothing nor use his hands in the execution of delicate acts. There is no lost sense of localization, the tendon reflex seems to be unaffected. Galvanic and Faradic action are disturbed and but few of the muscles of the upper extremities respond to stimulation. His breathing is very shallow and rapid, and his voice is dry and husky, and it is an effort for him to talk. No evidences of disease were found on examination of the heart and lungs, and the pelvic organs are affected to a slight degree ; he is troubled with tympanites. There are so far no cerebral symptoms and no morbid ophthalmoscopic appearances. Intellectually he has not suffered, but he tires easily and cannot apply himself to his work.

Trophic Changes after Spinal Concussion.—Trophic changes are apt to be presented, which are rare however, but of great interest.

A patient recently placed himself un-

* Ziemssen's Cyclopedia, vol. xiii. p. 350, Am. translation.

der treatment for the relief of nervous sufferings following an accident in 1879. He was thrown from a wagon, striking upon his left side and cutting and bruising the leg and thigh of that side and wrenching the right leg and back. According to his statement he was not at first insensible, but fainted and remained unconscious for a few minutes; his injuries were comparatively trivial and he resumed his duties in his regiment in two or three days, doing light work. Within a short time he became nervous and unable to sleep as he had before the accident, and was obliged to come East. Since July, 1879, he has suffered from various symptoms following concussion, such as pain through the lower part of the spine, over the first and second lumbar vertebræ, which sometimes extends upwards or about the body; he has in addition dull pain at the back of the head but no vertical pain, and none in the arms; he has sciatica from time to time, as well as pain in the ankles, more especially the left. It is impossible for him to get a comfortable position and he sits on one side of the chair. He cannot rise from his chair without great difficulty and there seems to be not only aggravation of the spinal pain but some loss of power as well. There is difficulty in going up stairs, and he usually does so laterally, the right leg being put in advance of the left. He limps slightly with the left leg, which is decidedly weaker than the right, and when tested the electrical reaction is diminished but there is no atrophy. The left tendon reflex is absent and the right is exaggerated. He co-ordinates well and can stand with his eyes closed. He can not turn over in bed without first sitting up and he has very great difficulty in rising from the recumbent posture. There is some incontinence of urine proceeding from atony of the bladder, and this fluid is loaded with lithates. There is constipation. He has had vertigo and blurring of vision but no ocular changes are to be discovered. His speech is somewhat affected, there being a clumsiness as well as actual transposition of words. By far the most interesting feature of the case is the manifestation of trophic changes. The skin was white and soft before the accident; within a year a peculiar bronzing and mottling

appeared about the ankles, which were covered with freckles, there being more perhaps on the left side than the right, and there is some swelling.

This patient has received very little benefit from treatment of any kind, and it is very probable that he has a serious organic change of both brain and spinal cord; his recovery is very doubtful.

Fatal Cases of Spinal Concussion.—

The two following cases reported by Wilks are examples of the same form of spinal concussion, and in both instances the patient died:

“Joseph P—, æt. 32. He was a railway porter, and whilst engaged in pushing a railway truck along the line, he suddenly came to an ash-pit, when, for fear of falling, he made a jump into it, and ricked his head. He seemed for a moment to be powerless, but soon resumed his work. On the following day also he continued his work as usual. On the third day, whilst walking along the Borough, he suddenly fell in the street, and was unable to rise, owing to the weakness of his legs; this increased during the next two days, when he was brought to the hospital. He was then completely paraplegic, had no power over his bladder and bed sores were already appearing. Subsequently the chest became affected, and he died six weeks after the accident. The spinal cord appeared quite healthy to the naked eye. When examined by the microscope, some fatty granules were found in parts, but the change from the normal appeared very slight.”

“Wm. A—, æt. 21. He fell on his back more than a year before his death, and then had symptoms referable to concussion of the spine. He gradually recovered and resumed his work, when symptoms of paraplegia slowly came on. These gradually increased, so that for about four months before his death his legs were completely paralyzed; then his arms became affected, and subsequently his eyesight. The intellect quite clear. After his death, when the cord was removed, it appeared at first healthy as regards its general look and its firmness. A section, however, showed the presence of disease extending its whole length, and passing through the pons to the corpus striatum. There was no disintegration or softening, but are mark-

able change had occurred from the presence of a translucent albuminous material within its substance. This was for the most part situated towards the surface of the cord, so that a section showed its circumference converted into a gray translucent material. The contrast between the original white medullary matter within and the adventitious substance around it was very great. In some places the latter had penetrated more deeply, so as to involve the gray matter of the cord. The pons varolii had on its surface two or three patches of the same material, and passing into the substance to the extent of about one-eighth of an inch, and on the corpora striata and thalami optici, especially the former; there were some similar patches of translucent matter on the surface. These did not penetrate deeply, and were not observable in the interior. In this case death was due immediately to suppurative nephritis."

Leyden presents a case* of which mention may be made. Its interest lies in the fact that the patient presented concussion symptoms followed by acute myelitis and pachymeningitis, which proved fatal.

"The patient, a healthy man of forty years, was severely bruised, in 1873, by being shaken about in a railway carriage, which had slipped of the track, and was dragged along by the engine for a short distance. His principal symptoms from that time onward were pain in the left shoulder, and paresis of the left arm, both of which continued until his death, though not to the same degree as at first; occasional attacks of pain in the sacral region, and in the back of the neck, and between the shoulders; "girdle-sensation;" until finally, in January, 1876, he had a sudden attack of acute myelitis, which proved fatal. The diagnosis made was myelitis due to pressure of a tumor in the lower part of the cervical enlargement of the cord. The autopsy confirmed the diagnosis, showing the tumor to be the result of chronic peripachymeningitis."

Locomotor Ataxia as the Result of Spinal Concussion.—Petit* alludes to

* *Archiv. fur Psychiatrie*, etc., viii., 1878, page 31, and *Boston Med. and Surgical Journal* Aug. 22, 1878.

* *Revue Mensuelle*, tome iii., 1879 p. 209.

locomotor ataxia that may be caused by traumatism and details among others the case of a man who received a kick from a horse. He was unconscious for some hours, but no immediate bad symptoms followed. A year later he began to suffer from cramps, pains, and tingling in the legs, and afterwards from incontinence. I have seen several cases which were quite decided in their expression, and in each instance some serious shock or blow was described. In one case the patient fell from an open window and the sensory symptoms made their appearance within a few weeks, and afterwards there was ataxia, disappearance of the patellar reflex and ocular troubles.

Gowers† refers to the possibility of a general myelitis resolving itself into a localized degeneration of the posterior columns.

Postero-Lateral Sclerosis.—Dr. Edes has published four cases which illustrate the frequent occurrence of degeneration of the postero-lateral columns of the cord as a result of spinal concussion. He noticed in these cases a very decided increase in the tendon reflex, ankle clonus, as well as contractions and other troubles. One of his cases is that produced:

"T. D., laborer, fell down-stairs eight days before his entrance into the hospital, and thinks he struck on his head, but has no bruise anywhere. Immediately after the fall he lost the use of both arms and hands. He can now move his right elbow a little. His legs are rather weak, so that he staggers on attempting to walk. There has been twitching of both legs for the last two days. The next day after entrance he did not sleep well. He complained of pain darting down the arms, which, he says, began immediately after the accident. The muscles react well to the faradic current. The paralysis disappeared rapidly and almost completely, and it was after his officiation for some time as a volunteer nurse, and about two months after the accident, that it was found that the tendon reflexes of the upper extremities were greatly exaggerated, moderate taps upon the tendons of the biceps, triceps, supinator longus, deltoid, pectorales, and even the sterno-

† *Br. Med. Journal*, vol. i., 1879, p. 304.

mastoids exciting decided, and in some instances, very active responses. Patellar tendon reflex somewhat increased; no ankle clonus. He was discharged relieved."

The Possible Complication with Lead Paralysis.—In certain injury cases the defense may be presented that the patient's symptoms are in reality due to lead poisoning, the result of his trade—and in such a case I appeared some years ago. In apposition to my case is that reported by Dr. Edes* in which the symptoms were largely complicated by those of lead poisoning. In this case, however, the major symptoms were due to the accident.

"D. H., aged 26, lead-worker, fell backward down-stairs while drunk. When admitted to the hospital the next day had cellulitis of the right leg, and various bruises on both legs. Four days after he was unable to move the right leg, and there was incontinence of urine. Two days later the left leg would not move. He had lost more or less strength in his hands. Two months after it was noted that the legs "draw up" at night, and he has difficulty in straightening them. He has pain in the back of the neck and between the shoulders. There was considerable muscular atrophy in the left hand, less in the right. Reflex and tendon reflex about normal. Ten days later the ankle clonus was very well marked. The patellar reflex was attended with several vibrations. There was no (slight?) olecranon tendon reflex. From this time his condition continued about the same, although he himself thought he improved. Attempts at voluntary movement were attended with strong spasmodic movements in both legs, which could easily be excited also by the usual procedure for obtaining ankle clonus.

"He was discharged from the hospital not relieved. In this case the postero-lateral degeneration may perhaps have been secondary to some more limited injury at first, say, for instance, small hæmorrhages.

"This man had a lead-line on his gums, and lead was at one time found in his urine. This point is interesting in connection with a possible affection

of the anterior horns and the atrophy of the muscles of the hands noted early in the case."

A man while sitting in a street car received severe spinal injury by reason of a collision with a heavy wagon. The pole of the wagon was forced through the back of the seat, striking him squarely in the middle of the back. He subsequently developed a meningo-myelitis with great pain, irregular paraplegia and atrophy of the muscles of the lower extremities. When he sued for damages, evidence was brought forward to show that his occupation had been that of a painter. He had not worked at his trade for a long time before the trial, yet one of the witnesses thought he discovered a lead line. I could not find any such change, but did find that his teeth were carious, and that he did not clean them, and the result was a spongy condition of the gums. His motor symptoms and atrophy were confined to the lower extremities, a very uncommon situation in lead disease, and there was no anæsthesia. His reflexes were exaggerated, and his upper extremities were involved. I subsequently learned that though he did not work at his trade after the trial, the symptoms advanced. The verdict was rendered for the plaintiff.

Suits for Damages.—Suits for damages instituted by persons who have been injured in railway accidents have, during the past twenty years, been exceedingly common, and often of great interest. Much of this arises from the expression, in many cases, of symptoms indicative of disease of the nervous system of a very peculiar nature, first recognized and described by Mr. John Eric Erichsen, a distinguished London surgeon. Mr. Erichsen's book has figured in many of the lawsuits that have since been brought both in England and this country, and at least, (putting it at a low figure,) twenty millions of dollars have been paid to persons claiming to have received spinal concussions since its appearance. In this country the wrecking of an excursion train on one of the New England Railroads—the Revere disaster—entailed a loss to the Eastern Railroad in judgments, settlements, and legal expenses of half a million of dollars, and another accident cost the Old Colony Railroad \$395,000.

* Boston Medical & Surgical Journal, Sept., 21, 1882, p. 265.

In similar cases immense sums of money have been paid by sympathetic juries. In England the sum of £16,000 was awarded to one claimant, while in this country, to Harold, the sum of \$30,000 was allowed by a Brooklyn jury.

The very nature of the irregular group of symptoms encourages fraud and rascality. Dr. Hodges, in two admirable papers, calls attention to the fact that in "twenty-one cases where the so-called symptoms of concussion of the spinal cord were alleged to be present, which have been under my personal care, ten are believed to have been deceptions, and in six the diagnosis, as regards deception, was doubtful. Of 26 similar cases observed by Rigler, seven were found who simulated, and in 13 the diagnosis in regard to fraud was doubtful. Of 49 cases, therefore, it would appear that 36, or three-fourths of the whole number, were really or probably deceptions."*

In my own experience the proportion has been equally great. The fact remains that after sudden and violent shock to the human body, even though there may be no apparent external marks or wounds, a train of symptoms, indicative of profound functional disturbance, may remain for a variable time, and may be followed by unmistakable organic disease of the spinal cord or brain.

The peculiar transmission of a concussion is very often somewhat remarkable. So far as is known, the disease known as railway spine, does not follow the hurling of a passenger against the seat or woodwork of a car, so much as it does the undefinable molecular change which is supposed to occur when the car in which the person is sitting is suddenly stopped when under way and going at the rate of from 20 to 40 miles an hour.

Embranlement.—What the French call *embranlement* immediately follows the complete arrest of motion.

It may happen, however, from the transmitted force of a collision with another train which may run into one stationary, that a person sitting near the end of the stationary train furthest removed from the point of collision, suf-

fers a spinal concussion sufficient to give rise to spinal injury.

A gentleman I saw who was injured in the H. R. R. accident, at Spuyten Duyvel, sat in the smoking car, the eighth car from the end, yet when the collision occurred he was thrown forward against the seat before him and then backward, receiving a spinal shock sufficient to give rise to objective as well as subjective symptoms. This, however, is not often the case, nor is it when the person is asleep, as was my patient. Much damage may occur from an apparently trifling accident. Mr. Charles Francis Adams, Jr., relates the circumstance of three gentlemen leaving a rear car of a train which had run into another, and going to their homes in perfect ignorance of the accident at the time, while in the front cars there was great loss of life.

The immediate nervous effects are often violent. I saw some time after an accident a strong man who had escaped from a wrecked car. Though an hour had elapsed, his nervous prostration was great, his hands and feet were icy cold; his whole body was agitated by tremor, and respiration and circulation were very much disturbed.

Lighter Forms.—An interesting case of the lighter form of spinal concussion is related by Bernhardt*—"A stout, healthy man received a violent concussion in a railway-accident, remaining senseless for some time, and being confined to his bed for three weeks with scalp-wounds, etc. When he was able to get about, he complained of general loss of strength, and of weak vision; during the first few weeks, of double vision. Examination at this time showed him to be in good general condition. He complained of headache, especially in the region of a scar some two inches in length over the left parietal bone. He was not particularly sensitive to blows on the head. He was more easily disturbed and depressed in spirits than previously. He was exceedingly sensitive to heat, which made him giddy and caused a throbbing in the scar. He could not bear the noise of wagons etc., and was unable to ride in any conveyance. Stooping or looking up or sud-

* Hodges Boston Medical and Surgical Journal, Ap. 23, 1881.

* *Berliner Klin. Wochenschrift*, 1876, p. 275 August 9. Abstract in *Phila. Med. Times*, 1876.

denly to one side made him giddy. He could read, but only for a short time, as the letters soon began to swim before his eyes. The pupils were similar and reacted to light, which was unbearable if bright. The movements of the ball were perfect. No change visible with the ophthalmoscope. Hearing good; no buzzing in the ear. Taste and smell normal. Nothing abnormal in the region of the remaining cranial nerves, nor in that of the facial, trigeminal, or hypoglossal. Pressure over the spinous processes of the vertebræ is only painful towards the lower part of the neck. Subjectively, a feeling of tension was experienced in the loins; rising and sitting down could be accomplished with difficulty. Movements in the upper extremities were free, but there was a loss of motor power; the outstretched fingers trembled; it took him a whole day to write a letter, the fingers trembled so when used. The patient could stand with the feet together, even when the eyes were shut, and could also walk, but slowly and with careful steps. The left leg was slightly dragged. He could only stand a short time on either leg alone. All movements could be performed with the limbs, but a very little hindrance sufficed to stop them. The left seemed to have less power than the right. No disturbance of sensibility. The patient was aware of even slight movements, and localized correctly. He could perceive, if his bare feet touched the ground, what the nature of this was. His urine was normal, and passed without difficulty by a little extra exertion. He could only retain his stools (otherwise normal) for a very short time. In a somewhat similar case which came under Dr. B.'s notice, no symptoms of brain-trouble were observed for a week subsequent to the accident. This patient suffered greatly from hyperæsthesia. In commenting upon these cases, Dr. Bernhardt alludes to the difficulty of making an exact diagnosis regarding the portion of the brain most affected. He also suggests the treatment advisable, and points out the importance, from a legal point of view, of the fact that one of the patients went about his ordinary occupations for a week subsequent to the railway-accident before any brain-symptoms developed themselves."

Pulse Changes.—The pulse of spinal concussion is often changed in character and becomes weak, irregular and greatly excited. I saw a patient with Dr. Charles E. Lockwood of this city, who presented a remarkable change in this respect.

Dr. Lockwood furnishes us with the following report from his history-book.—"On December 1, 1881, I was called to see Mr. W. W. R., who gave the following history:—While traveling from Washington to New York on a train on the Pennsylvania railroad on the morning of Nov. 30, 1881, he had occasion to enter the water-closet of the car in which he was, and while there in a standing position, adjusting his clothes, a collision occurred between the train on which he was and one following. He stated that he was first thrown forward, then backward, and then forward again, his abdomen striking upon the upturned edge of the cover of the seat of the water-closet, which, having been raised was in a position perpendicular to the horizontal plane of the seat; he stated that he vomited blood mixed with bile for about two hours, suffered much from pain, faintness, and was bathed in a cold perspiration which saturated his underwear. When he reached Jersey City he was seen by Dr. Watson, who prescribed for him. He then came over to New York feeling a craving appetite, ate some solid food, which he vomited soon after, and then took the cars to his boarding-house, where he endeavored to write some letters but was compelled to go to bed, owing to pain in his back.

"When I saw Mr. R. on Dec. 1, he was suffering from general hyperæsthesia over the whole body, but especially over the arms, legs, abdomen and back, severe aching pains in abdomen and back, and he was unable to move from the recumbent position without suffering from attacks of nausea and retching; he had passed his urine and there was no paralysis or loss of sensation and there had been no movement from the bowels.—Pulse 72 in a minute, and axillary temperature 98½°. Mind clear and hopeful. On Dec. 2, he seemed to feel dull and weak. Pulse 66. Temp. in axilla 97½, Resp. 18.—Was unable to take any solid food, and even milk and lime water in small quantities brought on attacks of retching; passed his urine only once in

24 hours; quantity, about 8 oz. Spoke of having *slight cramping in his toes*, as though one were crossed over the other; urine examined chemically and microscopically and no evidence of kidney disease found; specific gravity, 1020, acid, no albumen or casts. Matters continued about as described until Dec. 6, when the pulse was about 76 and intermittent three times in a minute and he complained of feeling slight tingling in the ends of fingers. Suspecting trouble of spinal cord I asked Dr. Walter H. Gillette to see him in consultation on Dec. 7, when a diagnosis was made of concussion of the spinal cord. I saw Mr. Randall twice daily from Dec. 2 to Dec. 19, 1881 and once daily with one exception from last mentioned date to Jan. 11, 1882; during that time his symptoms have been generally as follows: bowels sluggish and not inclined to move except after medicine, urine passed with some hesitation and difficulty and at infrequent intervals, sometimes only once in 36 hours; skin of hands dry and whitish-looking, showing malnutrition, prickling of ends of fingers, a continual "buzzing sensation" as he expresses it, in the fingers and toes, but which he has become so accustomed to that he does not notice unless spoken to about it; twitchings of muscles of calves of legs, especially right leg; burning aching sensation in the back, especially that portion between shoulder-blades and over lumbar region; low temperature from Dec. 2 to Dec. 11, ranging at about $97\frac{2}{5}$ in axilla and on Dec. 11 and Dec. 15, being about $98\frac{1}{2}$ in the rectum, not having been taken in rectum on other dates. Pulse intermittent, sometimes there being as many as ten intermissions in a minute; the intermissions were noticed first on Dec. 6, and continued until Dec. 11, there having been none from Dec. 1 to Dec. 6; from Dec. 11 to Dec. 29, pulse was regular, since which time it has at times been regular and again intermittent; he has had hallucinations and has been somewhat delirious at times, especially in waking from sleep; his memory is defective, and he has complained of confusion of mind and inability to concentrate his thoughts; has suffered from restlessness and inability to sleep at night. Dr. Hamilton saw the patient with me on Dec. 24, 1881 and Jan. 9,

1882, and confirmed the diagnosis of concussion of the spinal cord; at the present time his condition is about as follows: he suffers occasionally, more especially after any exertion, from twitching of posterior muscles of legs, pain in the back, numbness and tingling of fingers and toes, stands and walks with difficulty, being liable to fall unless supported, bowels sluggish, urine passes at times slowly and at times more freely. Pulse about 78 and intermittent, temperature about normal; pupils unequally dilated, tendon reflex increased in both legs."

Ocular Symptoms.—The ocular symptoms following spinal concussion or more serious spinal injuries are exceedingly interesting, but by no means as common as Erichsen would have us believe. It was Gowers* who first called attention to the serious changes that may exist at the fundus oculi as the result of a railroad injury; but in this case the patient received a blow upon the left side of the forehead which rendered him insensible for five minutes. He was laid up three weeks and suffered from spinal and head pain and general nervous disturbances. Page, who refers to the case, says that he presented six months after the accident, loss of vision in the left eye to a great degree, limitation of the field, and slight changes in the optic discs. In two cases I have detected well-marked optic neuritis, and in one there was commencing atrophy in both eyes, with Argyle-Robertson pupils, but both of these patients presented organic spinal symptoms. In many cases we find temporary functional disturbances of accommodation, which, however, need not be viewed with any seriousness. Among these are patients who really possess slight asthenopia which may be due to the general condition of bodily weakness, but this is all. Such patients are unable to concentrate their attention when reading, and such an effort produces headache. Sometimes we find that the disturbance is entirely due to a hypermetropia which is a congenital condition, and is increased by the patient's nervous exhaustion. In cases of fraud it may be found that the alleged defect is due to cataract or some condition entirely foreign to the case.

* *Medical Ophthalmoscopy*, 4. ed., p. 348.

Bogus Cases.—In contrast to the cases I have just detailed, and who, strange to say, made no attempt to bring suit or obtain compensation, are those which are familiar to every physician who has occasion to examine persons who present themselves after almost every railroad accident with doleful stories of suffering and injury which are far more often imaginary than real. I have seen many of these cases at the solicitation of the railroad companies, and have repeatedly heard the same story of deception.

The Effect of a Verdict.—In the great majority of cases a good verdict brings with it a complete cure, and patients who have been brought into court upon a litter surrounded by tearful and interested friends and attentive physicians, whose cases have been dramatically described to the jury, leave the court room and a few days or weeks after the swindle engage in their regular pursuits as if nothing had happened. It is to be regretted that in such cases physicians have been found who have been willing to testify to the existence of serious organic disease of the nervous system when no evidence of such was presented except the patient's unreliable and prejudiced statements. This class of cases is divided into two sub-divisions.

Hypochondriasis and Spinal Concussion.—Those who suffer from a hysteria or hypochondriasis which in one way is a diseased condition, and does not necessarily carry with it intentional dishonesty, and under these circumstances a fair verdict, directed rather to compensate for the injury of mind, should be given.

Fraudulent Litigation.—Another division of the above may be made, in whose ranks are to be found a variety of impostors as motley and disreputable as Falstaff's army. No one but the medical officer of a railroad can conceive of the cunning devilry which enters into the machinations of one of these disreputable claimants when backed up by an equally unscrupulous attorney. Careful detective espionage will reveal the fact that this paralytic (?) is about his business; that he is consulting with his friends at the porter house when he imagines he is not under observation; and that perhaps he may be engaged in such amusements as horseback riding,

base ball playing, or the like, when it has been claimed that he is paralyzed, or that he suffers from an inflammation of the spinal cord which prevents him from moving his body!

Instances of Deception.—In one of these cases, that of a man who claimed that his injuries were immediate, and that he was unconscious at the time of the collision, it transpired subsequently that he not only loitered about the wreck, but that he walked home and attended to his daily pursuits without seeming discomfort. In another case the individual was paid a large sum of money, and it was afterwards proved that he had not been upon the train at all.

I was called a few months ago to examine a man whose complaints were especially heartrending and unfortunate, but whose bodily condition did not bear out his story. This man's physicians claimed that *after* the accident he had developed a degeneration of the brain and spinal cord, but on good authority I learned that the same claim had been made by him several years before after an accident on another road, and an equally unfavorable condition of affairs was alleged to exist.

One of the most audacious instances of swindling I have ever known occurred as the result of the 42d street accident upon the Elevated Railroad. A young girl presented herself at the office of the company, presenting besides a vague series of symptoms suggestive of spinal concussion, a peculiar depression of the sternum which she claimed was a traumatic result of the collision. Upon the statement of her physician, whom she had deceived, three thousand dollars were given her, fifteen hundred of which were deposited in the bank in her name and the balance devoted to the payment of doctors' bills and other expenses. It was found within a year that the girl had not been upon the train at all, that the depression of the sternum had been made by an instrument like a brace and bit, held against the chest, and used in the process of artificial flower making, a trade she had been engaged in for some time, and that her other symptoms were pure inventions. Her father, who had coached her in her rôle of deceit, was arrested, convicted, and is, I believe, now in Sing Sing.

Exaggeration.—As I have said, the mental condition of many of these patients is purely hysterical, and from constant concentration of attention upon themselves and the expectancy of a verdict, a state of real suffering is produced which is striking and peculiar. While every muscle of the body may preserve its integrity of function, and no organ suffers pathological change, we find an emotional derangement which cannot be shammed, and there is a depression in some cases amounting to simple melancholia. With a few suggestions from Mr. Erichsen's book and a knowledge of how some friend was affected in another accident, a patient is ever ready to believe in, and complain of a variety of aches and pains which are purely imaginary. By the statement of these patients, and authors who have described them, it is found that "constant pain in the back," fatigue of the muscles, of the legs especially, headaches, "incapacity for mental work," confusion of ideas, "loss of memory and weakened vision" are characteristic symptoms of spinal concussion.

Hysteria and Spinal Concussion.—The unprejudiced physician will find, if he believe that these conditions really exist, that there are as well many other symptoms which are conspicuous in anæmic and hysterical persons who perhaps suffer from pelvic disorders, but depend in the case of the litigant upon nervous excitement and exhaustion and are entirely independent of any violent influences. Careful questioning may determine the existence of pain and tenderness over the seventh cervical spine, of ovarian tenderness; perhaps of digestive disorder, of the globus hystericus in some cases; and of pallor and other well-known manifestations of functional nervous disturbance.

In one of Page's cases the claim was made that the seventh cervical vertebra was unduly prominent, and the result of an injury, the patient having received a bruise upon the lower part of the back. Two years after the accident she was perfectly well. Not only may the person who is so eager for pecuniary balm attempt to palm off long existing troubles for genuine injuries, but he may invent the most outrageous and improbable pretexts for pressing his suit.

With such patients a loss of procreating power, or pretended injuries to the organs of generation are often claimed, while no such impairment really exists, and the matter is made more difficult by the absolute refusal of the patient to submit to any examination by the defendant's physicians, and in this she receives occasionally the support of the Court. A ridiculous side of the question is often presented after the disposal of the case, and, unfortunately, after a sympathetic jury have given a sentimental verdict. In one case with which I am familiar, it was claimed that the shock had produced an incurable dislocation of the uterus and that the woman would never again bear children. A few months, however, after a handsome verdict, she became a mother. It sometimes happens that the influence of uterine disturbance will greatly increase the nervous excitement and prejudice the minds not only of experts for the plaintiff but the jury as well. In a woman, the subject of miscarriages, this question arose. And Dr. Page, who reports the case, stated that though she was pregnant at the time of the accident the labor was not interfered with, but that she subsequently had several miscarriages and much nervous suffering, which she believed to be due in great part to the exhaustion attendant upon frequent gestation. It seems that the jury were inclined to take his view of the case, for they gave her but one-sixth of the amount asked for. Erichsen is disposed to take a grave view of a complication of pregnancy, not so much in regard to the immediate but remote effects of the concussion. So far as my own experience is concerned, I have found little to warrant the belief that the functions of the organs of generation in women are effected in any serious way by a trouble of this kind. This is true also in regard to the other sex, although claims are constantly made in the courts that all manner of disturbances and great enfeeblement follow spinal concussion. In cases of injury to the spinal cord attended by organic involvement above the splanchnic nerves such changes may follow, but these are very rare. Care should be taken not to accept the statement of the patient as conclusive that vesical irritability or in-

continence are due to nothing else than the injury, for in many of these cases there may have been previously existing cystitis, and in one I examined I found that the man had been buying and using a well known and popular specific known as Bethesda water, while in other cases a history of urethritis with its attendant consequences was ascertained. In men past middle age it may be well to find whether or not there is an enlarged prostate.

Insanity and Spinal Concussion.—It is sometimes urged that patients become insane as the result of spinal injuries. While I am perfectly willing to admit that organic spinal disease may by extension produce mental aberration, I have yet to see the case of insanity due to the effects of spinal concussion. I have no doubt that fear and mental shock incident to the excitement of a collision may give rise to derangement of the mind, and grave hysteria and hypnotic states may be induced.

A case related by Page is that of a strong and healthy man *æt.* 30, who was in a collision, and who presented the usual signs of having received a sprain of his back and some general shock to his nervous system. He lay for a long time in a hypnotic state, alternating with fits of violence and passion. When he awoke from this, he became the subject of a delusion that he was poisoned, and was accordingly, about ten months after the accident, removed to an asylum. He remained there about six weeks; and while an inmate he adopted a peculiar gait, which lasted up to the time when his claim was settled two years after the accident, and which formed the ground of a very serious view that he had received a permanent damage to his spinal cord. His mode of walking was thus described when he came out of the asylum: "He puts the weight of his body on two sticks placed in advance of him, and draws each leg alternately forward with the foot much everted. When about to advance one leg he twists the other inwards on the toes, so that the latter point forwards instead of outwards. He keeps the knees quite stiff. In this way he shuffles along with great rapidity. As he stood with his back against the wall, he was asked to lift up his knee, but he professed utter inability

to do so." Very careful examination was made at this time as to the nutrition and state of the legs, and a report shortly afterwards by a very able physician runs thus: "The reflex irritability and Faradic excitability of the muscles of the lower extremities are normal; there is an entire absence of affection of the bladder or rectum, or of any trophic change such as muscular atrophy and bed-sores. There is also an entire absence of muscular tension, rigidity, contraction, or deformity in the lower limbs. Examination did not enable me to determine whether any affection existed on the sensory side, as the patient absolutely refused to answer any questions. On the whole, my opinion of the case is that it is an example of many recorded instances in which a slight and unimportant injury develops various emotional and hysterical symptoms." At a final visit made to him before his claim was settled, he complained more than ever of pain in his back, and called out loudly when touched upon his clothes. While sitting in his chair he could move his legs in any direction required of him, though much persuasion was necessary to get him to move them at all. He suddenly vomited during our visit, without any precedent sign of nausea or retching. Asked to walk across the room he essayed to do so after the manner already described. There was no tremor of the legs during progression, and nothing like ankle-clonus or the gait which is seen when there is secondary degeneration of the cord. Subsequently, on being asked to go into the next room he began to do so, but almost immediately fell down flat on the floor, whence he was lifted and carried away. A very large claim for compensation was preferred, and was arranged two years after the accident, not, however, without a resort to litigation. He shortly afterwards left the house in which he had been living, and for some time it was not known where he was. Forty-two months, however, after the accident he was fortunately seen by one of the medical men who had visited him during his long illness, and he found him in perfect bodily health and vigor and father of another child. It should be stated, as having an important bearing on the case, that the man's previous history was bad. He

was always irascible and some years previous to the accident he had been laid up with sunstroke. There was also some doubtful history of insanity in his family."

The Loss of Memory.—The loss of memory complained of by the litigious sufferer is nearly always a volitional defect, and a case is related where the patient was utterly unable, according to her own story, to remember any of the details of her previous life and *not even her name*. Yet she recounted with great minuteness all the circumstances of the accident and showed intellectual vigor which, to say the least, was suspicious. The real state, in ninety-nine cases out of a hundred, is that we so often find in hysteria and hypochondriasis. Emotional depression, manifested by whining complaints, lachrymose concentration upon the possible termination of the suit and the frequent repetition of the story of the accident, show the burden of his thoughts. I have never witnessed really insane symptoms in uncomplicated spinal shock and I do not believe such are ever presented except where there has been head injury or advancing degeneration of the spinal cord.

Hæmoptysis with Spinal Concussion.—In opposition to the case I have mentioned in which hæmorrhage from the lungs occurred at the time of the accident, is one reported by Page, in which a malingerer claimed that a profuse hæmoptysis had occurred after a slight collision. A man of forty-five received a slight blow on the knee and another on the sternum, began to complain of nerve symptoms two weeks after the accident and took to his bed where he remained for two months.

His complaints were very much out of proportion to his actual suffering. The blood he raised evidently came from a very congested fauces. Eleven months afterwards a settlement was made with the railroad company, and two years afterwards it was ascertained that he had been at work for a long time, and was apparently in perfect health.

Sprains and their Results.—As the result of an accident we may be furnished with symptoms of pain which may be due to injury of parts outside of the

vertebral column and arise from sprain or muscular contusion.

Sprains of the spine are much more apt to follow injuries in which the body is twisted than where the force is directly applied. In the former case the pain will be diffused and general, while of course local blows will give rise to corresponding pain and stiffness. Occasionally we may find symptoms which are indicative of temporary disturbance of the functions of the spinal cord. A violent wrench may perhaps stretch the spinal nerve roots, causing painful symptoms, but I have never seen more than this, although Holmes reports a case in which there was some disturbance of motion. His case may be presented for the purpose, if nothing else, of showing how easy it is to be deceived by a collection of symptoms which rapidly disappear, but which may perhaps be referred to grave disease of the cord itself.* "A man, aged 31, while engaged in amusing his infant on the floor, and stooping on his hands and feet, was springing forward when he tripped and rolled over with his head under him. The weight of his body came with an impulse on his neck and gave him much pain from the twist it caused. He lay motionless on his back for ten minutes. When he attempted to move either his arms or legs, he found himself unable, and he had a sense of numbness and pricking throughout the body. His legs gave way under him as if he were intoxicated, when trying to stand. On being brought to the hospital it was necessary to carry him into the ward. When lying on the bed he moved both upper and lower extremities, but in a feeble and forced manner. Sensation was not lost, only impaired; he was able to tell correctly what part of his body or limbs were touched. Within twelve hours both motor power and sensation were restored, and the paralytic symptoms did not afterwards return. He complained of acute pain in the neck, which was aggravated by the slightest motion of the head, and they therefore kept his head perfectly still. He lay in bed with his neck sunk on a low soft pillow, propped around with sandbags. On examining the neck the chief tender-

System of Surgery, etc., Vol. 1, page 789, American Edition.

ness was at the site of the fourth cervical vertebra, and there deeply seated swellings could be perceived. The treatment consisted principally in the enforcement of absolute rest for the neck, with the application continually of iodine, a plastic shirt or support reaching from the shoulder to the back of the head having been prepared. He was allowed in a month to leave us, and he could then perform the nodding but not the rotatory motions of the neck. When trying the latter he turned his whole body around. In nine weeks the movements of the body seemed to be quite restored, but he was kept in the hospital for precaution's sake three weeks longer. He returned to his occupation, that of a shoemaker, and called several times subsequently to show that he was well."

Serious falls and injuries may give rise to sprains, which are perhaps followed by swelling or even by ecchymosis, but very often there is no vertebral or spinal disease; and it does not do for us to too hastily form a bad prognosis in cases of this kind.

A veritable lumbago of traumatic origin may be caused in the same way that it is by a fall upon an icy pavement. In some cases we find muscular rupture which may follow the resistance dependent upon a fixed attitude the individual may assume when he sees that a collision is inevitable. The separation of muscular fibres or ligamentous attachments gives rise to localized obstinate pain, which is aggravated by pressure or movements of a particular kind, such as bending over or twisting the body. I recall two cases, where very great suffering followed a separation of some of the attachments of the spinal muscles from the vertebral processes; and in one of these cases a very extensive rupture followed an accident which resulted from the front wheels of an ambulance dropping suddenly into a deep hole, and as a consequence an army officer who occupied the rear seat was thrown violently upwards and forwards, so that his head struck the top. Recovery followed a period of great suffering. In another case a woman fell into a sewer opening and the result was a considerable rupture of the fibres of the latissimus dorsi and the trapezius, resulting in impairment of the movements

of the arms and head. She was unable to use her arm and could not attend to her household duties; she received handsome compensation from the city. In such cases as these large verdicts should not be expected, for beyond the immediate pain and possible swelling and discoloration and subsequent temporary incapacity, there is very little chance of permanent after-effects, and juries should not be prejudiced by the complaints of the patient, which may become tinged with hypochondriasis.

The Fear of Moving.—Page refers to the *fear of moving* which may result from a constant dwelling upon a slight painful disturbance. "Ask any man," says he, "who has had a severe lumbago, whether from a sprain, from rheumatism, or from cold, if he has not at the same time felt a strange sense of difficulty in moving his legs. Brisk walking becomes impossible; the effort to put one leg before the other must be unnaturally great; fatigue comes on early and the patient complains to you that his legs feel weak, and as if he could hardly move them. Free micturition may likewise be interfered with from lack of the natural support and help which the lumbar muscles provide when this act is being performed. Constipation arises from the same cause. Thus it becomes nothing more nor less than natural for the friends to say that the patient is paralyzed, and paralyzed from severe injury to the spine. If we do not avoid this fallacy and do not correctly interpret this state of things, we shall add greatly to the dread which, after railway collisions, may be very real, that 'paralysis is going to supervene.'"

He relates this case: "A man who had received such injuries as we have described, and was confined to bed in consequence, needed three persons to help him out of bed every time he wanted to pass water during the day. To himself it appeared wholly unaccountable and extraordinary that whenever he woke in the night he could jump naturally out of bed without any help for the same purpose. It need hardly be said that the case was perfectly genuine."

Pain and its Character.—Great care should be taken not to confuse the vague

symptoms, among which is a spinal pain that may arise from lithæmia; and it is quite probable in some subjects that anxiety, voluntary inaction and perhaps a tendency to the gouty vice may account for many of the symptoms alleged to be due to the injury. We are to carefully note the relation of the pain, whether it be increased by movements or by the assumption of the erect position; whether it be associated with sciatica, whether paresthesia, or if it is aggravated by changes in temperature. we should always bear in mind that a severe injury of the spinal column and its contents is by no means easily produced because of the provisions made by nature for the protection of this part of the body. Not only, as it has been seen, is the spinal cord surrounded by fluids and tough membranes, but it is inclosed by elaborately connected bones separated by pads of cartilage which act as buffers, obviating the transmission of any severe shock, and it is protected behind by large masses of muscle and fascia.

Although such an accident is improbable, the theory has been advanced by Hilton that when an individual falls backward, the spinal cord, obeying the law of gravitation, may be thrown backwards, dragging the finer sensitive and motor nerves, giving rise to abnormal sensations of a light grade, and such may be the case with the history of a blow. In other cases, as Page has shown, an injury of the sensory nerves outside of the spinal canal may account for much of the pain that may be supposed to be of intra-spinal origin.

Pain Rare in Organic Disease.—Gower's observations upon the connection of pain with spinal disease are exceedingly practical. He calls attention to the fact that its existence in connection with abdominal and cardiac affections is so common and misleading that when uncomplicated its diagnostic value is not as great as it is usually supposed to be; and it is no exaggeration to say that of a hundred patients who complain of spinal pain, in ninety-nine there is no disease of the spinal cord. This coincides with my own observations, and of a large number of patients that have come under my charge from time to time, I have found

that uncomplicated disease of the cord itself was not attended very often by local tenderness, while in meningitis or vertebral disease the reverse was true.

Surgical Accidents.—In some cases of spinal injury, it will be alleged that a shortening of one lower extremity has been caused, and in a case I examined recently with Dr. Peabody this was claimed to be the fact. It however transpired that all the trouble had been referred by the patient to what she was told was an unsound limb, although we did not find any paralysis of either, or any thing to account for the shortening. To our surprise we found that the left limb was three quarters of an inch longer than the right; but upon consulting various statistics it appears that a large number of perfectly healthy persons present this congenital defect, so it must be borne in mind in these cases that after all such discrepancies often have nothing to do with disease.

Dr. Page's Tables.—Page has tabulated 234 cases of spinal injury received in railroad accidents, and it is curious to note that the large majority of these are tinged with a coloring of imposture, and it would appear that in cases where the largest damages were asked for, and where litigation was most bitter, the suspicion of malingering was generally evident. In many of these persons there existed other diseases, and just how much the symptoms were due to other agencies than the injury itself it is difficult to say. Case II. for instance suffered from sciatica, rheumatism and aortic regurgitation. This patient, soon after the settlement of the case, even after showing some improvement, was found dead in his bed; and his death was no doubt due to cerebral embolism. Several of the litigants had been hard drinkers before the various accidents, and many of the nervous symptoms were undoubtedly occasioned by acute alcoholism. And in a case reported by Dr. Fletcher, that of a man who died twelve months after an accident, which was ascribed to be the cause of his death, it was clearly proved that both before and after the alleged injury he had several attacks of delirium tremens. In another individual, the subject of a diabetes which ultimately carried him off, it was claimed that the symptoms

of this disease were entirely due to the shock. Page states that the diabetes was not of that traumatic variety described by Dr. Buzzard.

Bright's Disease and Spinal Injuries.

—A bad injury may be alleged to be the cause of renal disease. When the lumbar region is involved there may be hæmaturia. In some cases, where spinal injuries have thus resulted, and where there is advancing renal disease, we must not be too ready to connect such a condition directly with the fall, for there may have been pre-existing nephritis or other renal difficulties. Le Gros Clark is disposed to disbelieve in the existence of disease of the kidneys as a consequence of injuries to the spine. Holmes speaks of a case in which a gentleman claimed compensation for injuries which he declared to be the result of a railway accident. He asserted that he suffered from Bright's disease of the kidneys, which was directly produced by a blow upon the back, and the injury consisted in "a bruise over the right ilium and the side of the loins. As he walked some distance for his pleasure and took a long journey shortly afterwards, it may be inferred that the contusion was not severe. On the following day he observed blood mixed with his urine, and he continued for four more days to pass blood. On examining the urine at that time, his medical attendants found albumen contained in it, and they particularly stated that the quantity of albumen was larger in proportion than could be accounted for by the presence of the blood. During the whole period from the date of the accident to that of the trial, eleven months, the urine was found to contain albumen, and the view contended for by the witnesses in his favor was, that albuminuria had been caused by injury inflicted on the right kidney in the collision. On the part of the railway company, it was asserted that previous to the accident the gentleman had been subject to eczema, and that shortly before it he had been cured under treatment; accordingly the medical witnesses on that side, the writer being one, argued that albuminuria was known to follow eczema on its being cured, and for that and other reasons which could not be stated they expressed

a strong opinion that the plaintiff was suffering from the disease when he met with the accident, and that the injury could not have brought it on. The jury nevertheless awarded heavy damages for the sufferer."

In conclusion I may refer again to the behavior of many of the patients who bring suits for imaginary injuries, and I cannot use more forcible words than those of Page:

"With glib facility of tongue he talks of the frauds which are so notorious upon railway companies, but his own character is, and always has been, above suspicion. His complaints are many and grievous, but yet he would not make them worse than they are, bad enough though they be to keep him from his work, which his doctors urge him to resume. Occupation is impossible; he cannot leave the house; and his religious sense is shocked that for so long he has not been to church. He can bear no noise. He cannot read, and his only diversion is to hear his bible read to him by his children or his wife. He is pleased to see you, for he knows how deep and true an interest you take in his wretched state; and he is ever ready to fall in with—but not to adopt—the suggestions you may make for his comfort and the improvement of his health. Once more, as you leave him, he assures you with Pharisaic unction, that he is not as other men, and that he would be the last to try and make money out of the affliction with which he has been visited. His speech always betrays him, and exposes the pious fraud."

Fraudulent Pension Claims.—Pension boards are sometimes petitioned by individuals who claim disability arising from disease or injury of the nervous system due to accident or exposure in the line of duty. I have lately heard of a man who during the War of the Rebellion was struck upon the buttocks by a piece of shell, but his immediate injuries were slight. A few years ago, after a period of good health, he developed spinal symptoms, indicative of myelitis, and became paraplegic. The claim of the man and his physicians was that the injury was the direct cause of the present disease, which it is claimed is primarily vertebral. I am told that the recent symptoms were sudden in

their onset and symptomatic of disease of a part of the cord that could not possibly have been injured in the accident.

All manner of bogus attacks of paraplegia are alleged to result from spinal injuries by veritable "old soldiers," but often it is possible to find the history of alcoholism, syphilis, or subsequent exposure, or the symptoms will not bear close examination, and come under the class of cases so often claimed to be the result of "spinal concussion."

Reviews.

Excessive Venery, Masturbation and Continence. The Etiology, Pathology and Treatment of the Diseases arising from Venereal Excesses, Masturbation and Continence, by Joseph W. Howe, M.D., author of "Emergencies," "The Breath," "Winter Homes for Invalids," late Professor of Surgery in Bellevue Hospital Medical College, N. Y., etc., 8vo, 300 pp. Bermingham & Co., N. Y. Price \$3.00.

In his preface to the treatise the subject of review, the author says: "This volume contains the substance of a course of lectures delivered in the Medical Department of the University of New York, on the Results of Excessive Venery, Masturbation and Continence. In addition to the results of my own experience obtained in hospital and private practice, I have added the peculiar methods of treatment employed by various authorities in Europe and America, thus making the volume complete as a book of reference for the student and practitioner of medicine." How well the author has succeeded in his difficult task can be best appreciated by a careful perusal of his work.

It has been unusual for those who have been imbued with the importance of a thorough knowledge of these troubles to approach the subject with such "apologetic delicacy," as to sacrifice fact to sentiment, and often defeat the very object for which the particular treatise was written.

Under our present social system we are apt to shun the consideration of matters which seem to be, by common

consent, tabooed, and while appreciating the disastrous results of our silence, to close our eyes complacently and accept them as conditions which cannot be bettered; to this apathy may be attributed in a great measure the rich field opened by the charlatan, who, shrewd enough to see his opportunity, is not slow in taking advantage of it. Our author makes no apology for his book, but opens up the subject at once in his own peculiar, clear and incisive way.

Chapter I., "General Considerations," is devoted to a discussion of ignorance of sexual hygiene and its results, and is one of the most important in the entire work. In diseases of the various organs and tissues of the body, we recognize more and more the prime importance of prophylaxis, and most physicians look forward to the day when the profession will be consulted as to the preservation of health, rather than the cure of disease; our author shows in the opening chapter how keenly he appreciates this by the prominence given to the consideration of the prevention of masturbation in childhood and adolescence, and sexual excess in adult life, by proper education and timely warning and advice, before alluring vice has forged its chain around its unsuspecting victim. The proper conduct of the parent, the schoolmaster and the physician are discussed, as are also the many causes which by reflex irritation, frequently become the incentive to masturbation without tuition or "normal infection," and measures of prevention and relief are clearly pointed out, cases both from the author's practice and the literature of the subject, being freely used in illustration.

Chapters II. and III. are given to the anatomy of the genital organs, and the physiological consideration of their functions in both sexes, together with the peculiar changes produced in them by excess or masturbation. Various natural and morbid secretions which may exist and be passed with the urine, and thus give rise to a suspicion of spermatorrhœa, are described, and points in their differential diagnosis given, in a manner refreshingly clear and practical.

With this introduction, the author proceeds with the consideration of the results of masturbation and sexual ex-

cess, giving the views of Hippocrates, Celsus, Lallemand, Acton, Van Buren, Hamilton, Bartholow, McGraw, Gross, Post, Hutchinson, Morse and others; considering the etiology of spermatorrhœa and impotence, giving the causes in their order of frequency as follows: Masturbation, sexual excess, mental emotion, diseases of nerve centres, continence, diseases of testicle and penis, congenital and acquired malformation, diseases of rectum and urethra and drugs. The chapters (IV. to IX.) treating of this branch of the subject are concise and lucid; special stress is placed upon the influence of the mind upon the body, and cases are introduced liberally in illustration.

Chapter X. deals with continence; in it the author takes the view that fulfillment of function is necessary to a healthy organization: and that inaction must result in impairment of power; in illustration he cites the results of suspending the functions of the joints, muscles and eyes, and describes the changes in the genital organs consequent upon continence. The delicate subject of what advice should be given to the sufferer from the effects of continence, is handled in a masterly manner. Our author believes that every healthy man should be married at twenty-four, and in setting this age, says: "The question may be asked, why define as a limit the age of twenty-four? Are the genitals not active and ready to fulfill their physiological purposes soon after the age of puberty? It is true that the age of puberty is the commencement of entirely new conditions, and it would be possible for the organs to be employed in the fulfillment of their natural function; but I believe that while the development from youth to young manhood is going on, while the tissues are in process of development for the more active life of maturer years, sexual intercourse would probably retard that growth and development."

With the boy who has been free from bad habits and who is thoroughly educated as to the necessity of holding the sexual appetite in abeyance up to a certain age, so that he may become a perfect man, there will be little difficulty in preventing improper intercourse or legitimate intercourse before the time stated."

In reference to the unmarried, the author does not countenance sanction of illegitimate relief, for indulgence acts but as a palliative in such cases, and its repetition becomes necessary from returning desire, but he aptly says, concerning patients of this class: "My experience is that they have acted as they pleased so soon as they learned that intercourse was one of the essentials to perfect health—while a few get married, the large majority indulge their natural instincts without the formality of marriage, and dispense with further advice on the matter."

The balance of the sixteen chapters composing the book are devoted to treatment, and in these the author gives the results of his ripe experience with this class of patients; he justly takes exception to the treatment of all cases by prescribed rule, and classifies the cases under four heads: the first being characterized by predominating mental derangement, in which the patient "approximates more nearly to that of the lower animals than in any other affection short of complete insanity," and in which the prognosis is well-nigh hopeless; the second class composed of a combination of physical derangements, which secondarily produces the peculiar mental state found in patients of this class; the third, by far the most numerous, in which the trouble is mental and the result of fear of impotence, and a fourth in which excess of desire produces failure in the first attempt at sexual intercourse, which failure, reacting upon a sensitive nervous system, causes gloom and depression, and frequently leads to failure upon every attempt at repetition of the act. Upon sound physiological grounds, the author objects strongly to the routine use of the bromides in cases of spermatorrhœa and impotence, and clearly points out the cases in which they are admissible and those in which they are contra-indicated. The persistent and systematic use of electricity is advocated, and many valuable recipes are given in this portion of the work. The last chapter is devoted to details of treatment advised by Gross, Van Buren, Keyes, Post, Bartholow, Hutchinson, McGraw, Gant, Acton, Humphrey and others.

The work is written in a concise and practical manner, the author not only

showing familiarity with the literature of the subject, but giving evidence throughout of extensive practical knowledge which is only acquired by personal contact with cases. The book will form a valuable addition to the library of both the specialist and general practitioner.

Selections from Journals.

Fitzgerald on a New Operation for the Radical Cure of Hernia.

Dr. T. N. Fitzgerald, F.R.C.S.I., speaks as follows: Impressed with the manifest failure of Wutzer's, and the limited success of Wood's, plans, some years ago I schemed out an operation, of which the following is a modification, and which I have performed a large number of times.

The only instrument employed is a long stout needle, similar to those used in perineal operations, but the hank is longer and the point less curved. Sometimes I suggest, though I do not use it myself, a long needle without a handle, with an eyed point at each end; the employment of which, at one stage of the operation, avoids what appears to be an awkward movement of the hands, and enables the operator to pass his stitches more easily than perhaps he otherwise would do.

The patient having had his bowels cleared by a purgative the evening before, and an enema in the morning, is placed on his back, with his hips raised on a pillow. An anæsthetic is administered, and as soon as complete muscular relaxation is effected, the hernia, external ring, and neighboring parts, should be carefully examined; notice being taken as to the size of the ring, and whether the rupture is oblique or direct. The hernia, if descended, should be reduced, and the index finger of the left hand, pulp uppermost, carrying the scrotal integument in front of it, pushed through the external ring into the inguinal canal. If the opening be large, two fingers must be introduced; but above all, care should be taken that the hernia, once reduced, be prevented from slipping down. It may be necessary to obtain the aid of a skilled assistant to effect this, by pressing on the abdominal wall over the internal ring. The needle

is then inserted about two inches from the inner column of the external abdominal ring (A), and about half an inch above the pubes, pushed downwards and outwards, keeping the point of the needle deep and quite close to the abdominal muscles, till it meets the internal pillar fully a quarter of an inch from its free edge; this it pierces, and also picking up the conjoined tendon, is carried over the forefinger, lying in the canal, and guarding the spermatic cords and vessels, till it reaches the external pillar; under this boundary of the ring it passes for a quarter of an inch, when it is thrust through Poupart's ligament, till, traveling under the skin and superficial fascia, it comes to the surface at the same distance from the external pillar as its point of entrance was from the inner column (B).

By this means a substantial hold is taken of both pillars, which, before they are pierced, are tilted forwards, by the point of the forefinger from underneath, so as to avoid wounding the structures beneath. When once the digit is in the canal, and the operation commenced, it should not be removed till the stitches are finally pulled together.



Fig. 1.

Figs. 1, 2, 3, and 4 show the four positions in which the needle is inserted in the course of the operation. Throughout, A represents the spot where the needle is first inserted; B, the point where the first stitch comes out; C, point where the second suture is inserted; D, spot where needle first enters for third stitch.

The next step is to thread the needle (at B) with a piece of pure gold wire from fifteen to eighteen inches in length,

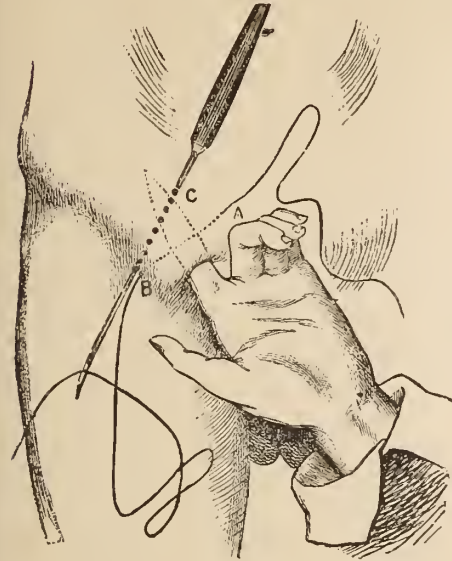


Fig. 2.

and sufficiently stout to withstand a tolerable strain; the needle is then withdrawn, and the wire left in its track. The second stitch is made by

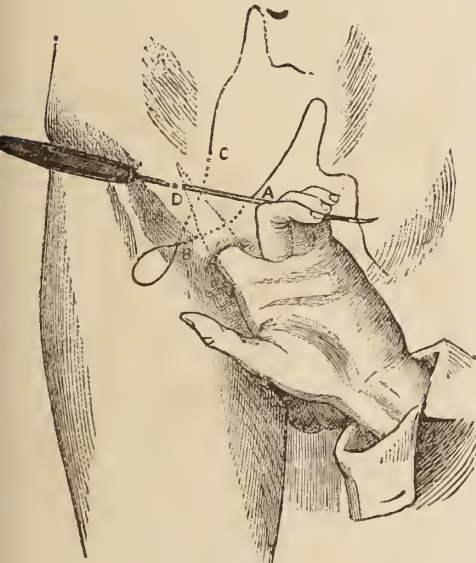


Fig. 3.

inserting the needle (at C) about two inches from the inner pillar of the external abdominal ring, and an inch

higher up than the first stitch. This time it is made to pierce the integument, subcutaneous tissue, and con-

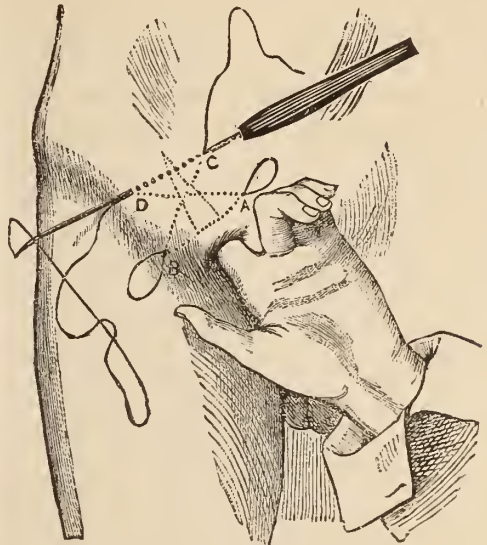


Fig. 4.

joined tendon; then it is passed on over the forefinger and Poupart's ligament (or the external pillar) to emerge at (B), the point where it came to the surface, in passing the first stitch; the

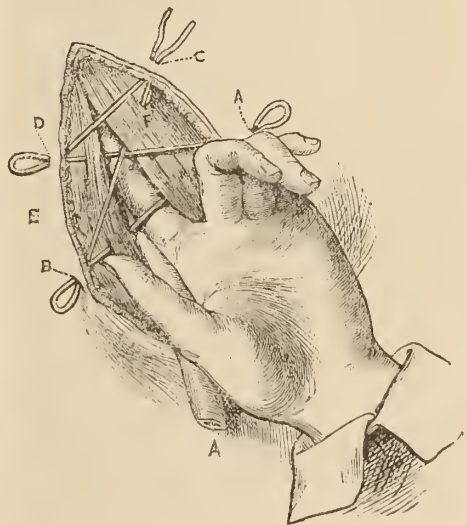


Fig. 5.

needle is then wired, with the end hanging out there, and withdrawn as before. In passing the third stitch, a little more

difficulty is occasionally experienced, and to do it neatly requires a certain amount of dexterity and some manipulatory skill. The long needle, sharp at either end as described, would render the operation less troublesome. If the same needle be used by the surgeon all through, the right hand and arm must

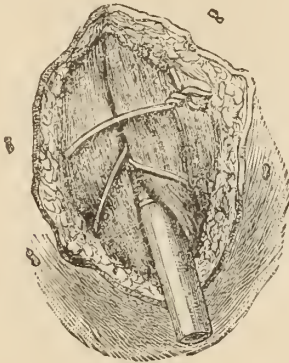


Fig. 6.

Fig. 5 shows the position in which the wire should appear, after the last stitch, and previous to bringing the walls together; E, outer skin; F F, coats of abdomen. Fig. 6 shows how the parts should appear when the loops are tightened. Fig. 7, the same, showing the puckering of subcutaneous fasciæ and tissues.

be swept round the lower part of the abdomen, and the point of the instrument introduced through the skin and external pillar at a spot (D) about an inch from (B) and allowing for the ob-

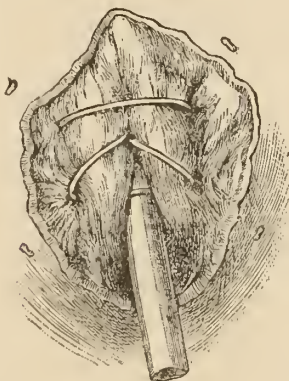


Fig. 7.

liquity of the canal, opposite the puncture where the needle entered in commencing the second suture (c). Having perforated Poupart's ligament, it now passes over the forefinger across the ring, over the internal pillar, and through

the skin at (A). If the long needle be used, its course is naturally reversed; entering at (A), it is thrust under the external pillar at the opening (D); the needle, whichever description is employed, is then threaded (at A), and the gold wire drawn through as before. A loop of wire is thus left projecting at (A) and (B), and the ends stand out at (C) and (D); by now passing the needle subcutaneously from (C) to (D) over the pillars and upper portion of the ring, the end of the wire protruding at the puncture (D) can be drawn out (at C), so that the two extremities are left projecting at the same orifice. Traction is next carefully made on the wire, sufficient to draw the pillars of the ring together, without cutting or so squeezing them as to strangle the tendinous structures, care being also taken not to kink the loops. The ends are then securely twisted, and cut off close to the skin, and allowed to fall back under the integument. A piece of lint as a protective pad is placed over the groin, and held in position by a spica-bandage, and the patient is put to bed. In a few days, the little tenderness occasioned by the punctures will have passed off, and a light easy-fitting truss may be applied and worn for a month or so.

I have depicted the operation as it is performed on the right side, the needle being worked by the right hand; the same description will suffice for stitching the other side—only, of course, substituting outer for inner, and so forth.

When the size of the external abdominal ring, in an oblique hernia, or the split in the tendinous structures in a direct hernia, is unusually large, it may occasionally be necessary to apply a second crucial stitch, above the first—making, as it were, a “double gate.” This is performed in exactly the same manner, except that the stitches are made deeper, and not so far apart from one another as when only a single suture is used.

Sometimes, as the loops are withdrawn, they pucker the skin, or cause a certain amount of invagination, especially when the needle does not make its entrance and exit through exactly the same opening. This can be remedied by picking up the skin between the finger and thumb, and giving it a kind

of shake or tremulous motion. If this be not sufficient, a tenotome may be introduced to disengage the wire. The suture being of pure gold, and perfectly unirritating, are left in permanently, and form a perpetual barrier to the descent of the hernia, stimulating, to some extent, the natural intercolumnar bands.

Such is the operation; and I may now make mention of some points that are essential to its success. The left forefinger must be very carefully kept in the canal the whole time, so as to avoid injury to the intestine and peritoneum on the one hand, and the spermatic cord and its vessels on the other. Again, in introducing the sutures, it is of the utmost importance to include as much as possible of the subcutaneous structures, so that these may form a pad, which, while it assists in closing the canal from the outside (not by a plug within, as in the other operations), also prevents the sutures from cutting through the tendinous structures.

To do this the needle must be entered well away from the pillars of the ring, and the first time should be passed deeply, close to the abdominal muscles, until the edge of the ring is picked up. The second time, the needle should be passed superficially, and close to the skin. When the ring is large, it is necessary to be sure and put in enough sutures, whilst care must also be taken not to close the ring too much, or the circulation in the spermatic cord may be interfered with, and atrophy of the testicle or varicocele may result.

I may mention that a former surgeon to our institution witnessed many of my early operations, and was so impressed with their success that he (having a large direct hernia) wanted me to operate on himself; however, I declined, as a truss kept it up easily without inconvenience, and also as he was a man advanced in years.

Of course, I, like most others, lose sight of my patients after a time; but I have never occasioned a death through the operation. In fact, it gives rise to so little local irritation or constitutional disturbance, that it is perfectly possible, though perhaps not advisable, for the patient to leave his bed two or three days after the operation.—*Brit. Med. Jour.*

Kinnicutt on the Treatment of Acute Rheumatism.

In an article in the *Medical Record* for Dec. 8th, Dr. F. P. Kinnicutt speaks as follows of the treatment of acute rheumatism by the salicyl compounds:—

First.—In controlling the arthritic symptoms (pain, etc.) and the pyrexia of acute rheumatism they may still be considered as constituting the most successful of all hitherto suggested methods of treatment. Their marked effect upon the pyrexia cannot be explained by their well-known antipyretic power alone.

Second.—While controlling the arthritic pains and pyrexia they seem incapable, in many cases, of wholly destroying the rheumatic virus, as is shown in the subsequent development of endocardial and pericardial affections and inflammations of other fibrous and serous textures.

Third.—Further proof is needed of a more frequent implication of the endocardium and pericardium under the administration of the various salicyl compounds than under any other hitherto advised treatment.

Fourth.—The most efficient, if not essential mode of their administration is in frequently repeated doses (every two hours), that the economy may be kept continuously under their influence; they should be continued in the initial doses during the first ten days of the disease, and given in very gradually diminished amount during the patient's entire convalescence.

Fifth.—Their possible anæmic effects may be rationally combatted by the use of iron salts before or with the beginning of convalescence.

Sixth.—A continued experience with the salicyl compound contained in the oil of wintergreen (methyl ether of salicylic acid), in the treatment of a large number of cases of acute rheumatism, confirms my favorable opinion, expressed a year ago, of its efficiency and other desirable qualities. An efficient dosage is two and a half to three drachms daily. A simple and easy mode of administration is in sealed capsules, each containing ten minims of the oil.

The London Lancet on the Use and Abuse of Pessaries.

This subject has before now been discussed from the point of view of the proper selection of cases in which pessaries are or may be useful. The subject has various bearings. In the first place, the statistics of Vedeler and Herman, quoted in this journal, show that ante flexion is more normal than any other condition in multiparous women, and that flexions, as flexions, do not, as a matter of fact, cause dysmenorrhœa. It is impossible to conclude that if flexions do not cause the most direct of all uterine symptoms—dysmenorrhœa—they will cause the symptoms known as indirect or remote, for a test of which we refer our readers to the text-books *passim*, and which include almost every ailment to which female flesh is heir. This being the case, it follows that flexions, as flexions, should not be treated. But, secondly, we will suppose a typical case in which pessaries are known to do good—namely, more or less descent of the uterus, with or without retroversion or retroflexion (which are most probably indications of descent), and we will suppose a pessary to be inserted—what amount of attention (i. e., attendance) should this entail? Undoubtedly a woman wearing a pessary should not be sent away ignorant of its presence, and without any directions. She should therefore be informed that such an instrument has been inserted; and she should be given certain directions. Thus, it is advisable at once to tell her that it is well to wash out the vagina once or twice a day with simple water, which will prevent secretions from accumulating, decomposing, and causing an unpleasant smell (which in some cases is bad enough to suggest the presence of cancer); she should also be told that soreness, itching, or profuse discharge indicates that the pessary should be seen to, and, generally that it should not be worn without being seen to three or four times a year. It is also usually advisable that the doctor should satisfy himself in a week or so that the pessary is doing good and doing no harm, and then, having once started the treatment, the patient should be left to test its efficacy. Now, this test implies the removal of some symptoms or symptom,

which may justly be attributed to some former morbid condition, and it also implies the locomotion of the patient. Generally speaking, a patient lying down is better without a pessary, whatever displacement is present; thus it is rare for even complete procidentia not to reduce itself, or become much smaller, when the patient lies down, and the symptoms of partial descent, which (if there are any symptoms at all) will include almost certainly a sense of weight and dragging pain in one or other iliac fossa, will disappear, or become greatly diminished, in the recumbent position. A pain which is better when the patient is standing and worse when she is lying should be regarded with suspicion if supposed to be due to descent or displacement: it is probably nothing of the kind. Thus it is to relieve pains increased by standing that pessaries are most generally useful. If this is not effected, the uterus may be unquestionably in the "normal" position, but the pessary is useless, and, if useless, injurious. Thus, the proper use of pessaries is first, in most cases, after the insertion of the pessary, to get the patient on her legs; secondly, to satisfy one's self in a few days that it is doing good and is doing no harm; but, as soon as both these objects are attained, send the patient away to test the treatment, with the above directions. It should not be the task of months to fit a woman with a pessary, any more than with a truss. The following are *not* instances of the proper use of pessaries. To keep the patient in bed for long periods wearing a pessary; to see her every day, every other day, twice a week, for weeks, months, or years. Perhaps such visits are not made to the patient, but to the pessary. However that may be, it is not the pessary, but the patient, who has to pay. What should we say of a surgeon who called for months to see a patient to whom he had given a wooden leg or a truss, and who kept him in bed for long periods; or of an oculist who had fitted a patient with spectacles, and saw him every day for several months, whether the spectacles seemed to suit him or not? It is true that the pessary is a truss in the dark, but that is no reason why the management of a pessary should be a deed of darkness. Recent investigations

have shown that the whole question of displacements has to be reconsidered. It cannot be too widely or too dogmatically stated that prolonged treatment by pessaries, such as we have described, is quite inadmissible and unnecessary; and, if unnecessary, injurious not only to the patient—i. e., to her *morale* as well as her purse—but also, in the best sense, to the practitioner; and, if to the patient and practitioner, then to the public and the profession. It should also be realized that a pessary is a mere form of truss, and that its operations, though removed from the general view, are not occult. Ill-treatment bids fair to bring this useful form of truss into disrepute, and we are daily expecting to meet the practitioner whose sensitiveness is such that he shrinks from a cure whose name he has learned to mistrust and dislike; but we feel bound to say we have not come across him yet.—*Lancet*.

Petit on Consumption during Amenorrhœa.

Dr. Andrè Petit (*Annales de Gynécologie*) after detailing carefully some twenty-four cases, arrives at the following conclusions:

1st. If, in the adult woman of normal constitution, there is no menstrual discharge in the absence of the ovaries or of the physiological action of these organs, ovulation, on the contrary, can take place in certain cases without the discharge of blood which is the external phenomenon of menstruation.

2d. The cases cited do not furnish an argument in favor of the theory of *disjunction* between ovulation and menstruation. The latter, normally dependent upon ovulation, may sometimes be at fault, when there exists in the woman a local or general cause, which makes it impossible for the uterus to furnish the elements of a hæmorrhage under the exciting influence of the ovary.

3d. Amenorrhœa under these circumstances is not an indication of sterility. There exists a large number of cases of pregnancy occurring during amenorrhœa.

4th. The physician should seek with the greatest care the cause of the amenorrhœa, to be able to declare understandingly regarding the aptitude for

marriage and fecundation of young girls suffering from this affection.

Lauder-Brunton on the Pathology and Treatment of Some Forms of Headache.

At a full meeting of the Medical Society of Islington, held October, 1883 (*Lancet*, October 27th), a very interesting paper, on this subject was read by Dr. T. Lauder Brunton, from which the following points are taken: Headache is usually the product of two factors—local irritation and general condition. The chief local causes are decayed teeth and abnormalities of the eye, although disease of the ear and nose, inflammation of the throat, and local irritation of the pericranium, or of the skull in rheumatism and syphilis, are not to be forgotten. Decayed teeth may give rise to temporal or occipital headache when the molars are affected, and also frontal when the incisors are decayed. The chief abnormal conditions of the eye are strain from reading, or working with imperfect light or for too long a time, myopia, hypermetropia, astigmatism, and inequality of vision between the two eyes. Besides these, alterations in the circulation and intra-ocular pressure are frequently produced by bile or poisonous substances circulating in the blood, and probably also a rheumatic condition affecting either the eye itself or the muscles which move it, is a not uncommon source of headache. When both eyes are equally affected, the headache is usually frontal, but when one eye is more affected than the other, the headache appears either in the form of brow ache or megrim. In treating any case of headache, the first thing to do is to see whether the teeth are sound and eyes normal. If anything is wrong with either teeth or eyes the defect should be corrected. The throat, ear and nose should be examined, to see if any source of irritation is present there, and the surface of the scalp tested by pressure for rheumatic or syphilitic inflammation. The locality of headache is probably determined chiefly by the local source of irritation, but this differs according to the general condition. Frontal headache, with constipation, is usually relieved by purgatives;

frontal headache just above the eyebrows, without constipation, is relieved by acid; and a similar headache, situated higher up at the commencement of the brain scalp, is relieved by alkalies. Vertical headache is usually associated with anæmia, and is relieved by iron. The more or less continuous headache of syphilis is usually best relieved by iodide of potassium, but in order to gain relief the dose must sometimes be much larger than that usually given, and may range from five grains to thirty grains for a dose. Similar quantities of iodide of potash are usually sufficient to cure the rheumatic headache.

Neudorfer on Narcosis by Chloroform, by Ether, and by Nitrous Oxide.

Neudörfer (in the *Deutschr Zeitschrift für Chir.*, Band XVIII.) investigates the above, and comes to some highly important conclusions, which may be thus summarised. 1. Air cannot hold more than 20 per cent. of its bulk of chloroform-vapors at the ordinary temperature and pressure. 2. Chloroform acts as a poison upon the red blood corpuscles, but only slowly, even upon corpuscles at rest, whilst those circulating through the lungs are not long enough under its influence to be destroyed. 3. It has been found by Bernard Gréhaut, Hoppe-Seyler, and Hermann, that hæmoglobin has a greater affinity for carbon monoxide than for oxygen, and for nitrous oxide than for carbon monoxide. In other words, in presence of an excess of carbonic oxide the blood cannot absorb oxygen, and in presence of an excess of nitrous oxide the blood cannot take up either carbonic oxide or oxygen. Hoppe-Seyler and Gréhaut think that if the weakest of these gases (in their affinity for hæmoglobin) be previously present in excess, it hinders absorption of the gases of stronger affinity. As to this, the authors think that it does not hinder this absorption, but that the latter are thus rendered innocuous, and also that the affinity of hæmoglobin for oxygen is not constant, but varies within certain limits. 4. If to an individual, whose hæmoglobin has a relatively weak affinity for oxygen, we give to narcosis a

mixture of 20 volumes of chloroform-vapor to every 80 volumes of air, he breathes a mixture holding 16 per cent. of oxygen instead of the usual 20 per cent. in the air, and it may happen that he may take up little or no oxygen, and the chloroform may exert its fatal effect. This is a simple and sustained method of explaining death by chloroform. 5. Now, arguing by analogy, since the very poisonous carbonic oxide can be rendered innocuous by the previous presence of other gases in excess, it is to be presumed that in a mixture of chloroform-vapor and oxygen, the chloroform could not exert its evil effects upon the blood-corpuscles. 6. There would be no danger of oxygen-poisoning, for the quantity given would be within the limits of the variations of oxygen taken up in nasal respiration. 7. The bad after-effects of chloroform would be done away with. 8. Twenty per cent. of chloroform-vapor would be unnecessary, since three to five per cent. are quite enough. 9. As to ether, it can be mixed with oxygen up to 43 per cent., but it cannot compete with chloroform, because it possesses no constant chemical constitution, and its behavior to human tissues is more prejudicial than that of chloroform. 10. The mixture of nitrous oxide and oxygen acts equally as well as the chloroform and oxygen mixture. 11. Oxygen is easily administered by Limousin's apparatus. 12. Narcosis thus caused is absolutely devoid of danger.—*British Medical Journal*.

The Medical Record on Laparotomy for Hæmorrhage in Tubal Pregnancy.

Twenty years ago, when the late Dr. Stephen Rogers, of this city, wrote his elaborate paper on extra-uterine foætation, and advised laparotomy for the arrest of hæmorrhage occasioned by the rupture of the Fallopian tube, he took a long look ahead. He was so convinced that the operation was a proper one that he condemned in very decided terms, the surgeon who should hesitate to perform it when the opportunity offered. It was a radical measure he contended, but under the circumstances perfectly justifiable, as such hæmorrhage was sure to result fatally unless a desperate

chance was taken. The acknowledged difficulty was in arriving at a correct diagnosis in time to give the patient the benefit of the operation. With the recent advances in abdominal surgery, and the remarkable success which has crowned the bold invasion of the peritoneal cavity, surgeons have accustomed themselves to believe that any operative procedure in that region may be safely undertaken. For this reason, perhaps, more than any other, Dr. Rogers' suggestion grew in importance and commended itself as a measure which might challenge a practical vindication. At least for the past few years operators have held themselves in readiness for their first case, and have so far agreed with the opinion of Dr. Rogers that they have been willing to assume the risks, great as they are. We believe that to Dr. Charles K. Briddon, of this city, belongs the credit of being the first to perform this operation. The patient was a young married woman, twenty-seven years of age, the mother of two children, the youngest three years of age. She had missed one menstrual period, and at the time of the second was seized with a severe colicky pain in the lower portion of the abdomen. This attack passed off, recurring at the end of a week, and being associated with symptoms of internal hæmorrhage. Dr. Briddon saw her early in the evening of October 29th, soon after this attack; diagnosticated rupture of the Fallopian tube with hæmorrhage, and advised immediate laparotomy. Drs. Thomas and Walker saw the case in consultation, confirmed the diagnosis, and endorsed the operation. The latter was successfully performed by Dr. Briddon, assisted by Drs. Gerster, Walker, and Sharlau, two hours after the rupture had occurred.

The corpulence of the patient made it necessary to make a long incision, reaching from the umbilicus to the pubes. Her collapsed condition rendered this almost a bloodless proceeding. When the peritoneum was exposed, a small incision was first made, which gave exit to a large amount of fluid blood. The incision was then enlarged sufficiently to admit the hand, and at least a pint of blood-clot was scooped out as rapidly as possible. The uterus

was then drawn up as far as its connections would permit, and the cause of trouble was at once apparent. Part of an ovum, one inch and a quarter in diameter, was found protruding from a rent in the left Fallopian tube close to its uterine extremity. The broad ligament was lifted as much as possible, and a probe, armed with a double stout plaited silk ligature, was passed through it as low down as could be done, and the ends were firmly secured above the free border. In these manipulations the ovum was forced from its bed in the oviduct, and was removed entire. The hæmorrhage appeared to be entirely controlled, the ligatures were cut short, and the toilet was completed by thorough cleansing of the cavity. The wound was then closed by silver wire sutures. No time was lost in completing the dressing, but the patient was removed at once to bed, surrounded with blankets and hot bottles. Her head was enveloped in a warm woolen shawl, a small hypodermic of morphine was administered, and brandy was used subcutaneously. It was not, however, until after midnight, that an occasional flicker could be felt in the pulse at the wrist. Vomiting, which occurred, was treated by frequent sips of hot water. Nutrient and stimulant enemata were used all through the night. On the morning of the 30th her appearance was much improved. She was inclined to talk, was even cheerful, and expressed herself as entirely free from pain; she only complained of the vomiting; but, notwithstanding these favorable signs, her pulse could scarcely be felt, much less counted; at times it could not be distinguished at all. The temperature was 101° , the respiration 36. At 10 A. M. her pulse could be counted, and it was 126; after this it improved for twenty-four hours, averaging 130, the temperature for the same period being 101° to 102° . In spite of the most assiduous stimulation, the circulation could not be maintained; she began to sink on the afternoon of the 31st, and died at 9.30 P. M., forty-seven hours after the operation.

The autopsy showed the abdominal wound agglutinated and adjoining omentum adherent. There was no general peritonitis, but the pelvic cavity contained two ounces of odorless fluid.

The uterus was enlarged to double its size. At the junction of the left oviduct with the uterus, and encroaching upon the cornu itself, was an ovoid swelling about one inch in diameter, darker than the surrounding structures, of a mottled, violaceous maroon color. Near the junction of the posterior wall of the duct with this swelling was a ragged opening half an inch in length, and leading into a cavity formed mainly out of that portion of the duct that traverses the uterine wall, so that the specimen might be said to represent the variety known as interstitial, or, more correctly, tubo-interstitial gestation. On incising that portion of the cavity that was developed at the expense of the uterine textures, it was found filled with adherent coagulum. The cavity of the uterus was not lined with decidua, and the uterine opening of the oviduct was impervious. Outside the rent were found the ligatures applied during life, and which had effectually controlled the hæmorrhage.

It is much to be regretted that the patient died. The lessons to be learned from this case have, however, many practical bearings. It has been proved that a correct diagnosis can be made promptly and under difficulties; that the operation is not in itself attended with any immediate danger to the patient; that the point of rupture may be reached without difficulty, and that the bleeding parts can be effectively secured. In this case it must be recollected that the patient was in collapse at the time of the operation. She would certainly have had a better chance if the laparotomy could have been performed earlier. But obviously this was impossible in view of the necessity of dividing responsibility and of receiving a proper endorsement for an operation which was a novel and hazardous one. The precedent has, however, been established, and we congratulate Dr. Briddon on his correct diagnosis and on his courage and skill in acting up to his convictions as to what should be done in such a desperate case. — *Medical Record*.

Macewen on Fracture of Patella.

Prof. Wm. Macewen, of Glasgow, (*Lancet*, Nov. 17,) formulates the follow-

ing conclusions on this subject: 1. The chief cause of non-osseous union in cases of transverse fractures is the interposition of fibrous and aponeurotic structures between the fractured surfaces. 2. If osseous union be desired in transverse fractures, it is requisite, in the first instance, to elevate all the tissues which lie over the fractured surfaces, and which prevent them from coming into intimate contact. 3. From the ease with which the two fragments in many instances may be maintained in position, it is probable that bony union could be obtained without suturing, provided these soft tissues were first elevated. Practically, however, suturing ought to be adopted, as it is the easiest way of securing accurate apposition, and adds no risk to the operation. 4. The operation of elevating the soft structures between the fragments, and of suturing the bone, ought to be undertaken within the first 48 hours after injury. 5. In order to lengthen a muscle, a series of V-shaped incisions made into its substance in a transverse row will effect the purpose while not diminishing its strength as transverse incisions do.

Chauvel on Osseous Suture of Transverse Fracture of the Patella.

M. Chauvel had collected forty-three cases in which this method was adopted, thirty-three of which were men, and success was obtained in twenty-eight instances, while three died, and one amputation of the thigh had to be performed as a result of the operation. His conclusions were, that in recent cases suture of the fragments should not be resorted to, but that where it was impossible by every other means to obtain a reunion, it would render good services. M. Championniere, in replying, said he was not of the same opinion as his colleague, on the contrary, he was in favor of immediate reunion of the fragments by suture, provided that antiseptic precautions were observed. M. Pozzi agreed with the last named and cited a case in which he had performed the operation, but the patient walked with great difficulty on account of the atrophy of the triceps, the result of forced immobility. In his opinion this state of the triceps would account for a great deal of the

impotence in walking. M. Verneuil refused to appreciate any operation in fracture of the patella for he considered any interference as dangerous.

Sholl on Cold Water Pack in Pneumonia.

Dr. Edward H. Sholl, of Birmingham, Ala., says: A brief descriptive history of the treatment of two cases last spring in and near the writer's old home at Gainesville, Ala., will throw some light on a method of treatment with which for more than a quarter of a century he has been familiar in its application to other forms of disease, but not in pneumonia. The first case was that of a mulatto girl, fourteen years old. As to medical treatment, it may suffice to say that up to the seventh day all the ground that could be measured out, save blood-letting, had been carefully covered, and in vain. Temperature ranged from 105° to $106\frac{1}{2}^{\circ}$; pulse and respiration rapid; expectoration characteristic, and the case from its exceeding gravity seemingly hopeless. A lounge was prepared on which a heavy double blanket, well soaked with the coldest water to be had, was laid. In this, the clothing being removed, she was carefully and thoroughly rolled and packed by careful nurses, and over this another pair of wet blankets was placed. Immediately the shock gave rise to violent paroxysms of coughing, with abundant expectoration of rusty-colored sputa. In less than thirty minutes the temperature had fallen a degree, the restless, tossing girl had become quiet, and in one hour she was sleeping a gentle and undisturbed sleep. The mistress of the house, an intelligent lady, made repeated observations of the temperature, had the cold water poured on as freely as was necessary, watching the pulse, one hand being left out, and at the end of seven hours, according to my directions, she was taken out of the pack, carefully dried, put back in bed to rest, and from this time on she continued to steadily improve. The temperature never came back to its old height; convalescence was as rapid as could be expected, thus happily terminating a case about as far removed from the possibilities of recovery as is ever seen.

The second case, a boy of seven years, has a similar history of symptoms of gravest import, delirium, anxious restlessness, high temperature. Stripping him naked, carefully packing him in four blankets thoroughly wet; the same violent paroxysms of coughing came on with free expectoration, followed by quiet sleep. Temperature soon fell one degree. As the blankets grew in the least warm, cold water was poured on freely, till at the end of three hours the temperature seemed permanently reduced, and the general condition more favorable, when he was taken out, dried thoroughly, and put in a warm bed. From this time on, improvement was decided; and fully as rapidly as could have been expected, he went on to perfect health.

It will be observed that in neither case was it necessary to repeat the process. Had it been properly indicated, it would surely have been done. So far as results go, it at least shows, if nothing more, that it does not add anything to the perils of a grave case, and very probably promotes decidedly the chances of restoration. Further practical study in this direction is not only admissible, but indicated, for in whatever way we add to our resources to cope with disease, we confer a lasting benefit on mankind.—*Med. and Surg. Rep.*

Society Proceedings.

NEW YORK SURGICAL SOCIETY.

Excision of the Wrist Joint.—

Dr. H. B. Sands presented a patient upon whom he had recently performed excision of the wrist joint. He was a Swiss, forty-three years of age, and a waiter by occupation, who came under Dr. Sands's notice in the early part of last summer, having suffered for nearly a year with symptoms of strumous arthritis of the wrist, the disease having gone on to softening and destruction of the joint, without the formation of abscess. He was treated by immobilizing the joint, but without benefit. The wrist being considerably swollen, and very painful and tender, Dr. Sands

decided to perform excision, which he did on the 31st of July, according to von Langenbeck's method, by making a single incision upon the dorsum of the hand and wrist. It was found that the disease involved a great extent of the synovial membrane, which had to be almost entirely cut away. The ulna and radius were separated, so that they could be moved upon each other with crepitus, and before the operation the bones were softened, the first row was removed by ordinary dissection, and the other bones were removed with a sharp spoon, the trapezium, however, and also the pisiform bone being left. The extremities of the ulna and radius were removed, and the bases of all the metacarpal bones except that of the thumb. A bone drain was inserted, peat dressing applied, and the arm was suspended. When the first dressing was removed, at the end of twenty-three days, the deep part of the wound was found entirely closed, and there remained only a superficial ulcer, which closed at the end of a few weeks. During the operation the radial artery was divided, but no harm came from the accident. The hand was now beginning to become useful, and the patient had the power of extension and flexion of the fingers to a considerable extent. He could flex the first phalanges with the metacarpal bones at nearly a right angle. Apposition of the index finger with the thumb was easy, the extension of the latter being limited, in consequence of the adhesion of the long extensor tendon to its sheath. The man was free from pain, and was able to move his hand and to grasp objects with considerable firmness. Passive motion was resorted to after removal of the dressing, and had been kept up steadily since. The operation was tedious, but Dr. Sands believed that von Langenbeck's method of excision would be found preferable to that recommended by Lister, in which lateral incisions were practiced.—*New York Medical Journal*.

Double Dislocation of the Patella.—Dr. F. Lange presented a boy eleven years of age, who illustrated dislocation of both patellæ outwards in every attempt to flex the knee-joint. It was difficult to determine whether or

not the abnormality was congenital, because it was not noticed until quite late. It had been simply observed that the child was not able to walk as well as other children, that his knees were exceptionally thickened, and became tired easily. Dr. Lange saw the boy about the first of June last, when he was pale, nervous, and sometimes fainted. When he walks he lifts his pelvis, and tries to keep the thighs as perpendicular as possible, thereby avoiding flexion at the knee-joints. The extensor muscles of the thigh are somewhat atrophied. Every time the joints are flexed the patella, which is abnormally small and flat, becomes completely dislocated, and turned so that its internal edge is directed in front, and the condyles of the femur can be easily marked out. There is a strong inward rotation of the femur during flexion. On the other hand he can extend the limbs completely only with difficulty; that is, they are stretched to about a right angle without hindrance, and then he makes a peculiar rotatory movement with the heel on the table and pushes the entire limb in order to complete the extension. If the patella is kept in position, he is unable to flex either joint. The hip-joints were normal. He had been wearing an apparatus, but without improvement. A complete cure probably cannot be obtained. *Medical News*.

NEW YORK ACADEMY OF MEDICINE.

Dr. T. Gaillard Thomas on the Prevention and Treatment of Puerperal Fever.—*Prophylactic Measures*.—1. In all midwifery cases, whether in hospital or private practice, the floor and ceiling of the room in which the woman is to be confined should be thoroughly washed with a ten per cent. solution of carbolic acid, or a bi-chloride of mercury solution, one to one thousand. The bedstead and the mattress should be sponged with the same solution. All curtains and upholstery should be dispensed with.

2. The nurses and physician should take care that all their clothing is free from exposure to the effluvia of septic infection, such as typhus, erysipelas,

septicæmia, scarlet fever, etc., and if there has been any exposure in this direction all the clothing should be changed and the body should be thoroughly sponged with a saturated solution of boracic acid.

3. As labor sets in the nurse should thoroughly wash her hands with soap and water, removing the dirt from under the nails, administer an antiseptic vaginal injection, repeat it every four hours during labor, and keep a napkin wrung out of the same antiseptic solution over the genitals until the birth of the child.

4. Both doctor and nurse should wash their hands thoroughly with soap and water, and scrape the nails, and afterward soak their hands for several minutes in a solution of bichloride of mercury (1 to 1,000).

5. The third stage of labor should be efficiently produced, all portions of placenta should be removed, and ergot administered in moderate doses three times a day, to be kept up for at least one week, to secure complete expulsion of the clots and closure of the uterine vessels.

6. The doctor should take nothing for granted, but at the conclusion of labor should carefully examine the vulva of the patient. If there is any rupture of the perineum it should be closed at once by suture, and if slight lacerations are found they should be dried thoroughly with a cloth, and equal parts of a saturated solution of carbolic acid and persulphate of iron applied, and again the surface dried with a cloth and painted over with gutta-percha collodion.

7. Within six or eight hours after the termination of labor, syringe out the vagina with an antiseptic solution, and introduce a suppository of cocoa butter containing from three to five grains of iodoform.

8. The vaginal injections should be repeated every eight hours. But in all cases of difficult labor, and in those in which instruments have been employed, they should be administered twice as often, and kept up at least for ten days. The nurse must wash and disinfect her hands before every approach to the genital tract of the woman.

9. Employ a new gum elastic catheter which has been thoroughly immersed in an antiseptic fluid each time the bladder

is evacuated, rather than trust the nurse to cleanse an old silver catheter.

10. The physician must inform himself *by personal observation* as to the competency of the nurse with regard to the use of the catheter, the administration of the vaginal injections, and the introduction of the suppositories.

It might be objected that so many details with reference to the lying-in woman are unnecessary, because of the enormous preponderance of cases in which complete recovery ensues without such treatment, and that to introduce them savors of the performance of some grave surgical operation. So much the more did Dr. Thomas urge them on this very ground, because he believed that the woman who is to bring forth should be treated as though she is to go through a capital operation.

At this point Dr. Thomas made a strong protest against the use of intra-uterine injections as a prophylactic resource, except after very severe operations in the uterine cavity, which rendered the occurrence of septicæmia almost certain.

But suppose that despite all these precautions the poison has entered, what are the most reliable means for checking the advance of the septic disorder? He did not believe there is any specific disease-germ which gives rise to puerperal septicæmia. It is probably the same cause which gives rise to septicæmia in the stump after an amputation, or after a wound with compound fracture, or in the lacerated tract after gunshot wound.

A portion of retained placenta or membranes does not give rise to true puerperal septicæmia, but rather to a toxæmia. If the mere presence of decaying material would produce septicæmia without the agency of a specific disease-germ, the disease would develop in healthy country localities.

As soon as the patient is stricken by the poison, certain morbid phenomena develop themselves, such as chill, high temperature, pelvic pain, mental disturbance, headache, pain in the back, and sometimes, though not commonly, nausea and vomiting.

Treatment.—*First.*—As soon as the diagnosis is determined upon, all pain and nervous perturbation should be allayed by a hypodermic injection of mor-

phine, unless there is some special idiosyncrasy in regard to opium, and throughout the attack, whether suffering in mind or body, the hypodermic use of morphine should be repeated sufficiently often to allay it. In this particular case the drug should be used hypodermically, and special care should be taken to use a clean syringe, dipping the needle before its use into a solution of bichloride of mercury (1 to 1,000), which will prevent the formation of abscess.

Second.—Being relieved of pain, spread an india-rubber cloth over the edge of the bed, making it fall into a tub of water rendered antiseptic by the use of carbolic acid (two and one-half per cent.), or bichloride of mercury (1 to 2,000). Then move the patient very gently across the bed, place a pillow under the head, allow each foot to rest upon the side of the tub, and cover with blankets. Then introduce either a Chamberlain glass tube or a Lyman metallic tube, very carefully guided by the index finger, passing it up to the very fundus of the uterus, attach a Davidson syringe, and throw a stream of water with gentle force against the lining membrane of the organ. If there is any suspicion that there remain attached portions of placenta or membranes, they should be carefully removed, using the finger-nails as a curette, as advised by Dr. Wilson, of Baltimore.

There are dangers attending the administration of these injections: first, the entrance of air into the uterine sinuses; second, the production of hæmorrhage; third, the danger of forcing fluid directly into the general circulation through the injection tube into the mouth of the sinuses; fourth, convulsions and violent pain, which produce a sudden and baneful influence upon the nervous system, and fifth, the passage of fluid into the peritoneal cavity through the Fallopian tube. All of these may to a very great extent be avoided by careful attention to details. By the use of a large tube, with water not less than 100° F., and using only a moderate degree of force, proceeding gently, cautiously, and slowly, these dangers can be avoided. The tube should not be allowed to fill the os internum or externum completely. If after the use of the injections it is found that the cervical

canal hugs the tube too closely, it should be dilated before further injections are practised, and this may be done by the use of either the hard rubber or Barnes dilators. If hæmorrhage occurs, persulphate of iron should be added to the antiseptic solution and ergot administered.

The frequency of the administration of the intra-uterine injection should be varied greatly with individual cases. In moderate cases, where the temperature falls readily, only once in five hours may be all that will be required, while in other cases they may be required every three hours, and in bad cases they may be administered as often as every hour. These injections should be administered by the physician always, and should be carried up to the fundus uteri, and every precaution exercised concerning detail. Dr. Thomas favored the intermittent stream. For a number of years he entertained the idea that the continuous flow was most desirable, but on that point he had changed his opinion entirely. Continuous irrigation he regarded as a delusion and a snare. For vaginal irrigation it is an excellent method; nevertheless, in severe cases he preferred to employ continuous irrigation and use the intermittent stream every three hours rather than exhaust the patient by the use of injections as often as seemed desirable. At all events, the plan is best which best cleanses the parturient canal.

Third.—Control the temperature by the use of Townsend's rubber-tube coil, placed over the entire abdomen, from the ensiform cartilage to the symphysis pubis, with ice-water flowing through it. In his service at the Woman's Hospital this means of controlling the temperature is as commonly and freely used as are gargles for diseases of the throat, and thus far no ill-effects had been produced, either in the way of chilliness or by the development of complicating diseases, such as pneumonia, pleurisy, etc. Formerly he relied upon Kibbee's cot for the same purpose, but had found the coil much more convenient.

Fourth.—Keep the nervous system under the influence of quinine, fifteen grains night and morning, or Warburg's tincture administered in capsule, according to the recommendation of Dr. John

T. Metcalfe, or by the use of salicylate of soda.

Fifth.—The diet should consist of fluid food, and the staple article should be milk, but animal broths may be alternated with it.

Sixth.—Efficient and abundant assistants. Two nurses are necessary, one for night and the other for day, and at least one extra physician as an assistant, in order to carry out this method of treatment more effectually.

In regard to the antiseptic substances used, they have been thymol, boracic acid, salicylic acid, carbolic acid, and bichloride of mercury. The last two are the best, and the bichloride seems to be about to supersede the carbolic acid, and for intra-uterine injections it should be used in the strength of 1 to 2,000.

—*Medical Record.*

NEW YORK PATHOLOGICAL SOCIETY.

Acute Pyæmia following the Passage of a Sound.—Dr. G. L. Peabody presented the heart of a man who had died of acute pyæmia following the introduction of a sound into the urethra. The sound had been passed for dilatation of a stricture in the bulbous portion, and apparently produced little injury. It was followed by chill and fever, and, in the course of a few days, resulted in death. At the autopsy there were well-marked signs of pericarditis, which had been recognized during life, and also acute ulcerating endocarditis, and commencing abscesses of the kidney. The blood-vessels in the neighborhood of the abscesses contained a greater number of micrococci than had been observed by Dr. Peabody in any other case.

An Unusually Thin Skull.—Dr. J. A. Wyeth presented pieces of a skull which was but little more than one-sixteenth of an inch in thickness. The history was not known. The skull broke to pieces with a slight blow of the hammer. It might throw some light upon cases in which fracture of the skull was produced by slight blows, as by a thrust with an umbrella.—*N. Y. Med. Jour.*

Miscellany.

Malaria Along the Hudson.—The New York State Board of Health reports as a result of its investigation into the cause of malaria along the Hudson, that this disease has been brought about, in part at least, by the railroads making embankments which prevent free drainage into the river.

The Brain of Turgenieff.—The brain of the great Russian novelist is said to have weighed 2012 grams. The average weight of the human brain is 1390 grains. Turgénieff's is said to be the heaviest which has yet been weighed.—*Med. Times and Gazette.*

A New Medical Test for Rape.—At a recent trial for rape, in England, the medical man who examined both the plaintiff and the accused, stated in his written report, that: "On pushing back the foreskin of the penis of the accused, there was an odor perceptible peculiar to woman."—*Med. & Surg. Rep.*

The Gastroscope.—Mr. J. Leiter, of Vienna, has constructed a singular modification of the microscope, to which the name of gastroscope has been given. Its use is for exploring the interior of the stomach. It consists of a metal tube, 65 c. m. long and 15 m. m. thick, bent at an angle of 150° at about one-fourth of its length from the lower end. At the lower extremity is contained an incandescent electric lamp for illumination of the interior of the stomach and an objective, at the back of which is a prism to reflect the pencil along the length of the tube; at the bend it is again reflected by another prism to the eye-piece. Provision is made for a circulation of cold water to prevent the lower end of the tube becoming inconveniently hot.—*Medical Press.*

A New Medico-Legal Society has been organized in Philadelphia. Professor John J. Reese delivered an address before it at its opening session.

Diagnosis of Diabetes.—A correspondent writes to the *Gazette de Hôpitaux* on a simple means of recognizing this disease. Every time that a patient in consulting him passed the tongue sev-

eral times between the lips in the course of conversation he concluded at once that his client was diabetic. Out of thirty-four cases not once did he observe an exception to the rule. The reason why is easily understood—dryness of the mouth—a fact well known to all.

A New Homœopathic Society in New York has been organized and called the New York Society for Medico-Scientific Investigation. The objects of the Society are, first, the introduction and proving of new drugs; second, the re-proving of drugs of which the pathogenesis is incomplete or inaccurate; third, the collection of data bearing upon disease in general, which would include the investigation of epidemics, their causes, the conditions present, such as atmospheric and climatic, the relation of drugs thereto, the so-called season remedy, the limit of drug attenuation, etc.

Strike of Wet-Nurses.—It is rumored that the wet-nurses (*nourrices*) in the pay of the Assistance Publique, intend to strike. They receive from 15 to 18 francs a month, but consider it insufficient, as private families pay at a higher rate. The director of the Assistance Publique has enumerated in this year's budget a sum of 150,000 francs for the benefit of wet-nurses. It is unknown whether this is a coincidence or a result.

Trees in Towns.—The question of the utility of trees in towns and cities was debated at the International Hygienic Congress held at Geneva last autumn, and has since been discussed with considerable spirit in the press of the city on the Rhone. The negative side has been supported with ability by Professor Piachaud, who favors the conclusions of the congress; Professor Goret champions the affirmative side, and has, we think, much the best of the argument. Trees are useful in centers of population, not only in affording shade from the fierce heat of the sun, but in distributing moisture in dry weather through evaporation from their foliage, and in facilitating the drainage of the soil by means of their roots. The part played by trees in maintaining the equilibrium of the atmospheric gases

is also of immense importance in crowded localities.

Dr. J. Marion Sims is said to have left, ready for publication, a story of Revolutionary times, entitled "Lydia McKay and Colonel Tarleton."

The Surgical Pantograph.—At a meeting of the French Association for the Advancement of Science, held at Rouen, M. Mallez presented an instrument of precision called a surgical pantograph, for measuring the dimensions of the enlarged prostate, and for demonstrating by the aid of graphic tracings the influence of treatment on the diseased organ.

Premature Sexual Development.

—The following interesting case is reported in the current number of *Amer. Jour. of Obstetrics*: Child now two years seven months old, began to menstruate when four months old. Flow comes regularly every twenty-eight days, and lasts four or five days. She weighs forty-nine pounds. Has features and form of a girl ten or twelve years old. Mammary glands as large as small oranges. The mons veneris is well developed and covered with a full growth of hair. The external labia large, and all parts of the vulva fully formed. All functions seem to be performed normally. Has never shown any disposition to handle her parts or masturbate in any way. Is quite modest with her mother, and particularly so with her father. Her tastes belong to a child much older. She is bright and intelligent, but easily irritated, especially at the beginning of the menstrual epoch. Parents not related. Family history good. No other case of the kind ever known in family. Her future sexual history will be very interesting. At what age can the menopause be expected? In a Brooklyn Museum the "Baby Venus" is on exhibition. She is a child three years old, weighs sixty-five pounds, health perfect, has never been sick, features of a young lady, and mammary glands fully developed. Pelvis and vulva much more fully developed than in children of her age. Has never menstruated. In our last number we mentioned two cases of temporary sexual development in children, caused by local irritation and reflex action it

was thought. These two cases have no local cause and are permanent.

Oophorectomy in a Girl Eight Years of Age was recently performed successfully, by a French physician, Dr. Duchamp. The left ovary and a large part of the Fallopian tube were removed.

Busts of von Langenbeck, Grafe, and Dieffenbach, have been recently placed in the surgical amphitheatre of the University of Berlin.

University of Vermont.—Mr. John P. Howard, of Burlington, Vermont, has just given 40,000 dollars to build a new medical department at the University of Vermont. In ten years Mr. Howard has given 400,000 to this institution.

General Prevalence of Small-pox in Mexico.—The *Mexican Financier* warns foreigners that, before they come to Mexico, they should be vaccinated, as small-pox is generally prevalent in the country.

Medical Baronets.—Since 1852, the honor of knighthood has been conferred upon 33 Physicians and Surgeons in Great Britain. Among these are, Sir Henry Holland, Sir Charles Locock, Sir Charles Nicholson, Sir William Ferguson, Sir James Y. Simpson, Sir John Corrigan, Sir Thomas Watson, Sir William Lawrence, Sir William Jenner, Sir James Paget, Sir Robert Christison, Sir William W. Gull, Sir George Burrows, Sir Thomas Spencer Wells, Sir Andrew Clark, Sir Prescott G. Hewitt, Sir William MacCormac, and Sir Joseph Lister.

The New England Medical Register, a new edition, revised by Dr. Francis H. Brown, has just been published by Cupples, Upham & Co., Boston.

Dr. William B. Platt on Saturday, November 24, obtained by examination the degree of Fellow of the Royal College of Surgeons of England. He is said to be the first native-born citizen of the United States who has obtained this degree. There were seventeen candidates, and nine succeeded in passing the examination.

Five Ovariectomies are reported by

Dr. Theophilus Parvin, in the *Med. News*, Dec. 15, all performed during 1883, four of which were successful.

A New Code Party has been organized in St. Louis, under the name of the Pathological Society.

Professional Advertising is sanctioned by the *Journal of the American Medical Association*. Provided the advertisement simply contains the name, residence, and specialty of the advertiser, he may publish and use it "*as freely as he likes.*"

Post-Graduate Instruction in New York is a success. The Polyclinic has 70 students, and the Post-Graduate School 60.

Dr. Oliver Wendell Holmes on Physical Diagnosis and Specialism.—We read the following in the *Canada Medical Record*: "I have often felt, when seeing hospital patients worried by hammering and long listening to their breathing, in order that the physician might map out nicely the diseased territory, the boundaries of which he could not alter, as if it was too much like the indulgence of an idle or worse than idle curiosity. A confessor may ask too many questions; it may be feared that he has sometimes suggested to innocent young creatures what they would never have thought of otherwise. I even doubt whether it is always worth while to auscult and percuss a suspected patient. Nature is not unkind in concealing the fact of organic disease for a certain time. What is the great secret of the success of every form of quackery? *Hope kept alive.* What is the too fatal gift of science? *A prognosis of despair.* "Do not probe the wound too curiously," says Samuel Sharp, the famous surgeon of the last century. I believe a wise man sometimes carefully worries out the precise organic condition of a patient's chest, when a *very* wise man would let it alone, and treat the constitutional symptoms. The well-being of a patient may be endangered by the pedantic fooleries of a specialist."

Medical Supply and Demand.—Statistics show that among 1,000 doc-

tors the number of deaths annually ranges between 15 and 25. At this rate the number of deaths annually among the 90,000 medical men of this country would be on an average 1,800. Among the 14,000 physicians of Austro-Hungary the annual death-rate is said to be about 320. If the same ratio existed in this country, the number of deaths annually would be slightly over 2,000. Probably the actual figure is not far from 1,800. On the other hand, the number of medical graduates in 1882-3 was 3,979, or nearly four thousand, and more than double the estimated number of deaths. Account must be taken of the number of physicians who annually retire from practice, and on the other hand of the number of graduates who never enter the practice of medicine. The annual increase of population is probably over a million.—*Med. Record.*

Johns Hopkins University has provided itself with a new gymnasium, which was lately opened to the students and the public by cards of admission. The promotion of physical culture will be a part of the regular collegiate course. Dr. E. Mussey Hartwell, who is in charge of this department, delivered an address on Physical Training in Colleges and Universities.

Large Heart.—At a recent meeting of the Pathological Society of New York a specimen was exhibited by Dr. B. Robinson consisting of a heart from an individual six feet four inches tall, and of corresponding proportions, who had suffered for years from symptoms of disturbed circulation. The organ weighed fifty-five ounces, and was believed by Dr. Robinson to be the largest on record. The president, however, cited one formerly presented to the Society by Dr. Clark, which weighed fifty-seven ounces.

Egyptian Rags are hereafter to be disinfected before shipment to this country. This precaution has been inaugurated by the State Department at the request of Surgeon-General J. B. Hamilton of the Marine Hospital Service. Pressure under steam and such other measures as may be found to be efficient for the purpose will be used.

A Crematory Association has been formed in Washington, and Congress is to be asked to give it a charter. A German physician has given a lot on which to erect a crematory similar to that in Washington, Penn. One of its members says that the expense of burning a body will not be more than \$35, and that soon they may be able to reduce it to \$20.

The Cartwright Lectures for 1884 will be delivered by Professor Burt G. Wilder, M.D., of Cornell University, at the hall of the Young Men's Christian Association, corner of Twenty-third Street and Fourth Avenue, on the evenings of February 2, 4, and 6, 1884. The general subjects will be "Methods of Studying the Brain."

Origin of the Word "Charlatan."—It is generally admitted that the word "charlatan" is derived from the Italian word *Ciarlare*, to chatter, to prate. It appears that up to the 16th and 17th centuries the word was pronounced "chiarlatan." A German journal gives its etymology differently: a Paris physician, Latan, went through the town in a chariot containing his drugs, and in which he examined his patients. This caused the expression "Voila le Char de Latan," which was subsequently corrupted into "charlatan."

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THE ÆSCULAPIAN.

VOL. I.

FEBRUARY, 1884.

No. 2.

Original Articles.

THE DIFFERENTIAL DIAGNOSIS OF EPILEPSY IN CHILD AND ADULT.

By E. DARWIN HUDSON, JR., M. D.

Professor of General Medicine and Diseases of the Chest
in the N. Y. Polyclinic. Visiting Physician to Bellevue
Hospital, and St. Elizabeth Hospital.

The ensuing article is essentially an abstract of clinical remarks, upon cases of recurring convulsive seizures before the physicians in the class of General Medicine, at the Polyclinic, on Nov. 8th, 1883. In such cases the question of diagnosis demands a careful analysis of symptoms and a judicious estimate of the clinical history, to arrive at even an approximate conclusion. The patients' interests, the one an intelligent boy, the other a young woman fairly circumstanced, demand that caution be taken not to hastily pronounce the existence of true epilepsy if the slightest element of doubt attaches to the diagnosis. Still further the prognosis and therapeutics—the latter now generally conceded to require a protracted or even indefinite employment—require the most detailed examination. Reversely, a negative conclusion, if fortunately it be reached, as regards true epilepsy, demands a further search for the provoking cause or causes of the explosive attacks which we designate more mildly as convulsions or fits when occurring in children from well defined and simple causes; or in adults, from more obscure causes and associated with constitutional vices or lesions of the nerve-centre, we term epileptiform. The entire group of diseases and conditions which simulate epilepsy have to be borne in mind. Nor is the diagnosis one to be made at all times leisurely, at protracted sittings, with the advantage of a carefully narrated history of family predisposition and personal habit. The child is seen for the first time in a violent convulsion, or succession of recurring or almost continuous seizures. The

adult is found prostrated and convulsed under circumstances and surroundings which require refuge to the phenomena of the seizure as the chief or only guide to diagnosis. An inference may therefore be all which a conscientious physician is warranted in advancing. Without attempting to enumerate all causes of epileptic and epileptiform seizures, the general practitioner must speedily pass in review the essential diseases at issue. For although we owe to the many distinguished students in the special field of neurology our exact knowledge of the best therapeutical agents in treating epilepsy, and a most exact knowledge of many cerebral diseases causing it, still if must be conceded that the pictures of true epileptic seizures, as well as of the simple convulsion, the hysterical convulsion, of apoplexy, and many others which enter into the question of diagnosis, were complete, nay graphic, long before neurology had developed on a basis of physiology and pathology; and judicious observers of symptoms alone have always been able to arrive at a very correct diagnosis. A vast majority of all cases of convulsions, whether epileptic or non-epileptic, and due to constitutional disturbances, peripheral irritations or centric cerebral causes, will of necessity continue, as in the past, in the charge of the general practitioner.

As illustrative of our subject we present a boy with the following history:

E. H., of American parentage, age 11. His mother is with him and narrates his case as follows: She has had six children, the oldest now 20 years of age, the youngest our patient. Her husband, herself and all the other children healthy. This boy, on the other hand, has always been delicate, required to be carefully reared and has been backward in his studies. During the past year he has had five fits at irregular intervals. On one or two of these occasions he has vomited orange peel and other indigestible matter, yet the mother is unable to say that the attacks coincided with indigestion. He is habitually indulging in

fruits and nuts and confectionery between meals, and was equally irregular in diet for years before these symptoms. We also find he has foul breath, coated tongue, flatulent, bloated bowels and irregular stools, often quite constipated. He has never voided worms. There is no history of masturbation. Inquiring, we further ascertain that his seizures have not occurred during or subsequent to a period of febrile disturbance, emotional excitement, fright, physical or mental fatigue or nervous stress of any kind or degree. Nor have his seizures occurred during sleep. On the contrary they have always been by day, and at least twice have developed when he was perfectly quiet and looking out of the window.

The description of the seizure, elicited as a simple narrative and revised by careful catechizing, shows that he had clonic spasm of the sterno-cleido-mastoid, retracting the chin backward over the left shoulder, then opisthotonos with some cyanosis, a subsequent stage of general twitching or clonic spasm, with final relapse into sleep. He froths slightly at the mouth, but has not bitten the tongue. He has never voided his urine and fæces involuntarily during an attack. Viewed briefly, as I would approach any case in private practice, I should say the differential diagnosis in this case is one of (1) true epilepsy and (2) epileptiform convulsion, the result of either: (a) gastro-intestinal indigestion. (b) intestinal entozoa. (c) preputial irritation. Other causes of convulsions in children might be enumerated, but the history and present appearance of the patient warrant their omission. The patient has no evidences of cerebral defect either past or present. The convulsion if a primary one, and in progress, would further involve the consideration of meningeal irritation and the incubation or the onset of the exanthemata. Age excludes peripheral irritation from dentition, a frequent cause of convulsion in infants, and exceptionally in children of seven or more years, during the eruption of the permanent teeth. The seizures in our patient's case have recurred at intervals of 2 or 3 months, without febrile disturbance and disassociated from other symptoms. Hence we may safely exclude all but

the four causes enumerated. It may be suggested that I have not mentioned uræmia, as a possible cause of convulsive seizures at irregular intervals. Uræmic seizures may occur insidiously, but only in the adult from old contracted kidney; a rare occurrence in the child and usually associated with other proofs of deteriorated health. The uræmia of children for the most part comes with a catarrhal or desquamative nephritis induced by an undue elimination of scarlatinal or diphtheritic poison by the kidney, and will quite surely be announced by preceding scantiness of urine and puffiness of face or extremities. These possibilities are also excluded in this case.

The resemblance which our case bears to true epilepsy is pronounced in many respects. Let us look for the evidences of the possible symptomatic or secondary nature of the attacks.

And first the degree of indigestion and mal-assimilation—it is pronounced. The child eats habitually between meals, has foul breath, coated tongue and disordered bowels. The abdomen is large and pendulous, though not specially tympanitic. He is pale, poorly developed and nervous. The urine is frequently voided which suggests an increased quantity of urinary salts. As worms have been suggested by the family as a cause, and, being watched for, were never seen, we may exclude entozoa.

With reference to preputial irritation, the prepuce is long, phymosis is decided, and retraction is impossible. A little smegma presents at the preputial orifice. Yet there are no adhesions, and the prepuce is freely movable on the glans. There is absence of redness of the corona glandis, meatus or prepuce. There is no undue sensibility upon handling, and the mother states explicitly that the boy is free from the habit of scratching or rubbing the parts, or any motion or position betraying conscious discomfort in the parts.

The child urinates often, noticeably so. This may be ascribed to hyper-sensitive urethra and prostate from long prepuce, but in the absence of other evidences of genital irritation, it is quite as explicable as the product of the neurotic temperament, or as due to acidity of the urine from habitual indi-

gestion and mal-assimilation. Again, as bearing upon the question of genital irritation, we find that the child has no reflex muscular spasm, no atrophy or weakness of the lower extremities. I feel warranted, therefore, in also excluding genital irritation as a cause of these seizures.

Our decision, therefore, must be between (1) convulsions in a child of neurotic temperament, induced by voracious, perverted eating and gastro-intestinal indigestion, and (2), the slow development of true epilepsy. I lean to the former hypothesis for the following reasons, in part already stated: 1. The child has habitually gastro-intestinal indigestion, is flatulent and constipated. 2. There is no epilepsy in the family, recent or remote. 3. No accident or unusual shock to mind or body occurred antecedent to the development of these attacks. 4. The long intervals between the attack, which would not be unusual in the epilepsy of adults, but is exceptional for a child.

Reversely, their epileptic nature is suggested. 1st. The attacks have developed and continued to recur at intervals of 2 or 3 months during the present year. So far as we know, the same provoking causes of temperament, delicate health and indigestion existed during previous seasons without inducing attacks. 2d. In the majority of the attacks there has been no vomiting; they have been unprovoked by over-effort, fatigue or excitement, and came on when perfectly quiet. 3d. The attacks have possessed the definite sequence of stages and the characteristic phenomena of the epileptic paroxysm, viz., twitching of chin over left shoulder, opisthotonos and general tonic spasm, subsequent clonic spasm, and concluding period of sleep. 4th. Even in children subject to epileptic seizures, or developing the neuropathy essential to the disease, indigestion may be the immediate provoking cause of the "explosion of nerve force." Still further, considering the incomplete data which neurologists possess as to the neuro-pathological causations of epilepsy, may we not assume that a primary convulsion of some severity, arising from indigestion, which has caused effusion at the base and other vascular disturbances, may alone, or with recur-

ring attacks, develop a lesion and a habit of subsequent true epilepsy.

Every general practitioner sees numerous cases of infantile and puerile convulsion induced by peripheral irritation, as dentition or intestinal derangement, in children previously well, which, singly or recurring, are followed by paralysis, temporary or persistent as of the motor oculi muscles, or of the arm or leg, and later of mental incapacity and epilepsy. Such experiences certainly suggest that convulsive seizures, originally of peripheral causation, may by their violence seriously disorder the cerebral economy, by hyperæmia, serous effusion or sero-plastic deposits, so as to fully establish nutritive changes within the cranium and give rise to chronic epilepsy. I am aware that the epileptic seizure is ascribed to a state of cerebral anæmia of a part at least of the brain at the time of the explosion, but there may be a collateral hyperæmia of adjoining parts, and numerous attacks of congestion and apoplexy at the base are inaugurated by violent convulsions, demonstrating that states productive of effusion and exudation also cause the epileptic seizure. I have one case in mind, a child whom I have watched for several years, whose seizures at first were invariably produced when his little brothers and sisters would permit him to eat a whole apple or confectionery between meals. The frequent recurrence of the attacks under such exciting causes has impaired the child's mind so that he is foolish.

I think that the patient whom we have been studying should be further observed by his mother, under our instructions, before we decide whether the attacks are reflex from indigestion or predisposed by a centric cerebral defect. His mother must be advised to more carefully study his seizures. She should note whether they co-exist with extreme indigestion, whether vomiting of sour and fermented food occurs at the time. She should further watch for evidence by an epileptic aura, premonitory excitement and the epileptic cry. She should detect any occurrence of seizures at night in sleep, and any intercurrent manifestations of the nature of petit mal, as, for instance, momentary stupor, confusion, staring expression, eccentric, meaningless movement or gesture.

To further aid in arriving at a diagnosis we must seek to remove the element of indigestion. His bowels must be moved at once and kept regulated, and his stomach sweetened by bicarbonate of soda. His diet must be plain and nutritious; no meat or heavy food at supper, no confectionery, no unripe fruit, and no eating between meals. If following this thorough correction of his stomach and bowels the seizures recur, although I have excluded genital irritation as a probable cause, yet I would advise circumcision. For despite the negative testimony as to self-abuse and other preputial irritations, the phymosis may exert a peripheral disturbing influence and reflex excitement. These two conditions—indigestion and genital irritation—being removed, a continuance of convulsions will warrant the diagnosis of idiopathic epilepsy. In the event of such an ultimate diagnosis, what will be our prognosis? Under the circumstances, I should say, favorable. The child kept under strict surveillance as to regimen and diet, with tonics and the mixed bromides for at least two years, possibly moderately continued until after the age of puberty, will probably cease to be epileptic. Cod liver oil and phosphates are suggested by the child's poor physique, small bones, large articulations, flaccid muscles, pallid face and pendulous abdomen. I have also treated several epileptics successfully without the bromides by combining conium, as a sedative, with phosphate of iron, viz:

R
Succus conii..... M. clx
Ferri phosphatis..... grs. clx
Syr. simpl. (vel tolutani) f 5 ij
M.

Sig. "For an adult a teaspoonful three times a day."

The diagnosis of epilepsy in the adult is often equally trying. The majority of cases of sudden convulsive seizure from whatever cause, are seen by the general practitioner rather than by the specialist. He is called to a regular client or to a case of emergency, and the diagnosis has to be made by him at once. The case is characterized in a general way by falling ("the falling sickness") unconsciousness, with marked or slight convulsion. This state of things necessitates a discrimination between

1. Syncope.
2. Hysteria.
3. Uræmic convulsions.
4. Alcoholic convulsions (other than uræmic.)
5. True epilepsy.
6. Meningeal apoplexy.
7. Malingering.

I think I have enumerated the above maladies in about the order of their relative frequency, unless probably hysteria should take precedence of syncope. Syncope should be speedily differentiated by brief inquiry and examination. We note the tendency to faint, presence of profound anæmia, great debility, cardiac bruits, dilatation, fatty heart, hæmorrhage and causes of disturbed circulation, as shock from over-effort, fright, excitement, which will explain the attack. The patient was seized with dizziness, blindness, dyspnœa, has become pale or ashen in the face, and fallen unconscious, with cool surfaces, relaxed muscles and suspended respiration. There is apparent collapse, often with absence of pulse and dilated pupils, and the patient is in some instances apparently moribund. Careful auscultation detects only feeble cardiac action, often slow, intermittent and irregular. The element of a brief delay clears the diagnosis. The patient is given air freely, the clothes loosened, a pungent vapor as of ammonia or camphor applied to the nostrils, a little ice water sprinkled on the face, nitrite of amyl inhaled if at hand, and in a moment the cardiac force is renewed, suspirous breathing is developed, respiration is restored, color returns to the face, the pupils react and contract, the patient becomes conscious, though often for a time weak and confused. Most of the epileptic phenomena have been wanting in such a seizure.

The hysterical seizure, however, may, in some instances, deceive the most expert observer. The period of tonic rigidity is usually brief, and respiration is not suspended sufficiently or long enough to simulate epilepsy; the stage of clonic spasm is often indefinitely prolonged, either continuously or intermittently, and the contractions are exaggerated and grotesque, with great disproportion in force and violence to the undisturbed and tranquil state of respiration and heart action.

Our next patient hardly illustrates the point at issue, yet demands a discrimination between the milder phases of hysteria and *epilepsia mitior* (*Petit mal*).

Mary —, aged 29, Irish, twenty-seven years in the United States. About one year ago she developed "weaknesses," attacks which, as described, resemble *petit mal*. Questioning elicits the fact that great apprehension precedes the attack and marked *globus hystericus*. She never loses consciousness. She further states that six years ago she had similar attacks at night, which usually aroused her. She has marked menstrual disorder. We are, therefore, justified in regarding her seizures as hysterical, unless some definite symptoms of *petit mal* supervene. She will be placed upon Hewitt's mixture (aromatic spts. of ammonia, spts. etheris co., spts. *lavendulae* co., equal parts).

As more typical, I will state in outline cases recently occurring in private practice.

1. Miss C—, "saleslady" in a large retail store, overtaxed by long hours of work in the busy days preceding holiday week; constantly stands, and breathes impure air and dust created by the crowd. Has grown anæmic, lost appetite and is nervous. I am called and find her held down by anxious friends, and affected with clonic spasm of irregular continuance and distribution, with some intermitting rigidity. Her breathing and pulse are excited and active, eyelids closely approximated, eyelids noticeably tremulous, as also the corner of the mouth. Dismissing all persons from the room, sponging the patient's face with a towel wet in cold water, speaking to her quietly, after a few minutes waiting she becomes tranquil and opens her eyes. She complains greatly of pain in her head, sleeplessness, great fatigue and discomfort over one ovary.

Directed rest in bed the presence of one quiet person in the room and prescribed:

℞.
Chloral hydrat.
Potass. bromidi āā . . . grs. lxxx
Liq. opii. co. (Squibbs) . M. xl
Elix. valer. ammoniæ . . . f 5 j
M.

Sig. One teaspoonful in water; repeat in two hours if required.

The case was one of simple hysteria from fatigue and deranged gastric and ovarian functions.

Almost similar is the case of a man, induced by alcoholic and emotional excitement.

Mr. M—, age 32, actor by occupation. I was called and told he was dying, or in great danger. Found him in bed "stalled" on his side, with apparently a lateral tonic incurvation of the body, and rigid arms and legs, teeth tightly closed, flushed face and tightly closed, tremulous eyelids. Quietly waiting to watch him, found that he soon relaxed his rigidity and had a succession of clonic spasms evidently devoid of regularity in recurrence or distribution, and obviously grotesque and exaggerated in character. As in the preceding case, a little time, quiet, the removal of excited attendants, cold cloths to the face and forehead were followed by composure, and the eyes were opened. The patient then stated he had undergone great mental excitement—having been served with divorce papers by his wife, and had also taken some eight or ten drinks, which was moderation for him, as he often took from twenty-five to fifty per day. A hypodermic injection of Magendie's solution and atropia was given, alcoholics interdicted, and a chloral and bromide mixture prescribed, to be used if required. The case was entirely like moderate hysteria in women.

The difficulty is equally great if the patient is persistently quiet and resists efforts to rouse her, thus simulating the stage of stupor following the epileptic seizure. Even here there will be absence of the suspirious, slow or irregular breathing of the semi-comatose or exhausted subject of recent epileptic seizure. The pupils will not be noticeably dilated, and will respond to light; the tongue will not have been bitten.

Mrs. R., wife of a grocer, age 42, healthy, well developed, but no children. Of nervous, hysterical habit and jealous of her husband. I was called and told she had just had a serious convulsion. I found her flat on her back, stolid, refusing to be roused, with fixed eyelids, resisting my efforts to retract them. Heart rhythm and force normal, pulse full, breathing quiet. Directed husband and friends to leave her alone, and pro-

nounced her case hysterical, harmless, and requiring no medicine.

The hysterical convulsion is often disproportionally prolonged, violent, irregular and intermittent, and often grotesque. Cardiac action, by auscultation as well as by the radial, cervical and temporal pulse, is found to be nearly normal and rhythmical. The peculiar tremor of the eyelids, if present, is diagnostic. The pupils often react to strong artificial light. Tenderness on pressure over the ovaries often exists. But the marked absence of disturbance in force and quality of respiration and circulation is the most noticeable negative evidence. Uræmic convulsions may be either single, well defined seizures speedily terminated as active convulsions, and leaving the patient more or less comatose, proportionate to the amount of urea circulating in the system, and the amount of intracranial serous effusion. Or again, the uræmic convulsions, if due to intense uræmic intoxication, will be characterized by a rapid succession or frequent recurrence of active convulsions, or even a continuous convulsion, noticeably of the clonic form—with a degree of associated rigidity of the extremities, during the intervals or remissions of more decided clonic action. History of debauch, alcoholic breath, suppression of urine, evidently empty bladder, as shown by supra-pubic percussion and introduction of the catheter, albumen and casts in urine if drawn by the catheter, and œdema of lower extremities, are the conditions which either singly or conjointly establish the inference or diagnosis of uræmic convulsion.

Alcoholic fits may be uræmic, evidenced by acute alcoholism, or may be due to the effect of alcohol in excess permeating the body and acting directly on the nerve centres as well as the peripheral nerves. Yet this is exceptional, alcohol being more properly ranked as an anæsthetic, and the patient in most cases, under heroic imbibition, going at once into a state of unconsciousness and shock, with lowered temperature and feeble pulse. Such a case I recall—a boy of 12 years, left at noon in charge of a liquor store by his uncle, who went to dinner. The boy at once proceeded to imbibe freely of each and every strong

liquor and wine, and was found prostrate, with pale and cold surfaces, feeble heart action and infrequent respiration. Friction, kneading, stimulating enemata (non-alcoholic), ammonia and faradization, were resorted to persistently as in profound alcohol poison. It is, I repeat, a question whether uræmic poison, induced by alcoholic irritation and engorgement of the kidneys, be not the cause of a greater number of rum fits. True epilepsy I will not describe in full, since my aim is rather to present the problem of the differential diagnosis of the other seizures simulating it. Briefly, the chronicity of the attacks, the recurrence at unanticipated and irregular intervals, independent of definite exciting causes, the presence of an aura, the cry, the preliminary spasm of the sterno-cleido-mastoid, the stage of tonic rigidity of trunk and extremities, suspended respiration, brief period of clonic spasm followed by sleep or weariness, constitute the picture of a definite attack of grand mal or true epilepsy.

Meningeal apoplexy is marked by its suddenness, violence, protracted and violent clonic spasm, marked contraction of the pupils, disturbance of respiration, suspirous breathing, puffing at the mouth, often a rigidity of arms, trunk and legs, or clonic spasms coexisting with a persisting or steadily deepening coma, the patient gradually sinking into profound coma and collapse; in many respects simulating uræmic convulsions; in at least two cases in which I have had autopsies, interstitial nephritis coexisting with the disease of the cerebral vessels, which permitted the meningeal apoplexy, yet noticeably differing in the greater violence of the seizure, greater disturbance of respiration, and association of paresis of face or arms.

Malingering is not frequent, and may be associated as a voluntary addition to hysteria—a combination of highly wrought neurotic habit and emotional activity, or may be a pure simulation, an artistic reproduction of all the grosser physical movements of epilepsy. The perfect tranquility of the heart, the normal pupil, prompt reaction to stimulation, are the means of exposing the fraud. During the civil war malingerers often simulated epilepsy to escape en-

rollment in the army or secure discharge. In our large cities the same device is resorted to to escape arrest for theft or other crimes, or to provoke the sympathies of the charitable and unsophisticated.

I have not included in this differential diagnosis the more ordinary form of apoplexy and attacks of cerebral embolism and cerebral thrombosis. Only a careless observer would mistake these seizures, when the lesion is not peripheral (irritating the meninges), for any of the forms of convulsion. The apoplectic facies, evidences of cerebral shock, drawing of face, difference in muscular tonicity of two sides of body, and manifest hemiplegic disparity, as shock or coma subside, are too definite to be misinterpreted.

SARCOMA IN A CHILD'S SKULL.

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In W. Heineke's "Surgical Diseases of the Head (31st fascicle of Billroth und Lücke, Deutsche Chirurgie), 1882," we read as follows: "Sarcomata of the cranium have been observed in every period of life, but rarely in the first decade."

Henry Trentham Butlin ("Sarcoma and Carcinoma, their pathology, diagnosis, and treatment. London. 1882." p. 69,) enumerates but three cases of sarcoma of the skull in children. One was in a female of four years. It was round-celled (Pathol. Trans. xxxi., p. 216. 1880), one—spindle-celled—in a boy of three years, (Jahrb. d. Kinderheilk, viii., p. 374. 1875), and the third—mixed-celled—in a boy of four years (Virch. Arch. lvii., p. 297. 1873.)

F. Beely, in his essay on the diseases of the head in childhood p. 57 (in C. Gerhardt Handb. d. Kinderkrankh., vol. vi., part ii.,) has the following passage: "Not quite uncommon are malignant tumors on the skull of children. They exhibit a rapid growth and prevalence of cells and blood vessels. Probably they are sarcomatous, though older authors and the English of to-day consider them carcinomatous. They originate either in the dura mater, or bone, or integuments."

The cases being so very rare, the following will be found interesting:

Thomas C., æt. 3 years and 9 months. His mother was healthy, and had borne five children in twelve years. His father was a drunkard and died of erysipelas. The mother had five sisters and four brothers, all healthy. She had an aunt who died of a tumor. The first child of Thomas's mother died at the age of five years of a tumor under the arm, that had been operated upon, but had returned.

Thomas weighed four pounds when born, and had a healthy wet nurse. His head, when quite young, was noticed to be large, and it is reported that the doctor said he had "water on the brain." His head gradually diminished in size, in proportion, but he did not thrive. What little strength he may have had he soon lost. He began to walk when two years and six months old. He could say papa and mamma when three years old, but has not since added anything to his stock of words. He never asked for food, but when he was hungry he cried. He played but very little. In the autumn of 1878 a swelling appeared on his right parietal bone, near the coronal suture, about the size of a pea and grew rapidly. The child seemed sick, was restless, rolled about a great deal, pressed its hands upon its head, the feet became cold, still he did not *appear to suffer*, and his appetite remained good. His bowels were costive. When admitted, March 3, 1879, to my service in the Mount Sinai Hospital, N.Y., he was restless, irritable, and cried a great deal. He did not walk and wished to be carried about. He was unsocial, took no notice of the other children, did not wish to play, but ate and slept well. Heart and lungs normal. His general appearance was that of a stupid, idiotic child. The other children looked upon him as a stranger and as strange. The only sound he uttered beside his occasional crying was a loud long-drawn humming, frequently repeated when he was on his back and comfortable, a humming that attracted the attention of the children through the whole ward. During the first week in which he remained in the hospital the tumor grew very rapidly, increasing in size in the one week fully twenty-five per cent, reaching about the

size of half a man's fist, not painful and rather elastic. A very obscure sensation of fluctuation was present, the tumor was not compressible, and the skin covering it was normal. The superficial veins were somewhat dilated. An exploring puncture brought a little blood.

March 11.—An operation was performed, consisting in making a long incision over the tumor, peeling off the skin, cutting through a dense membrane surrounding the tumor in the neighborhood of the cranium, peeling the tumor from the cranium, (which was easily accomplished, as the attachment to the bone was only slight) until an irregular opening into the cranial cavity was reached, having a diameter of half or three-fourths of an inch.

Before the outer portion of the tumor was removed a pulsation was noticed near this opening into the cranial cavity. When it was lifted up and peeled off a little more, the portion inside the cranial cavity was broken into and four ounces of milk-and-coffee colored fluid escaped. The condition of the child during the first part of the operation was good, but towards the latter part the pulse became feeble, and, as it did not seem desirable to allow the liquid to escape from the cranial cavity at once, the operation was stopped, the external portion of the tumor removed, and the wound closed with a few long hair-lip needles. There was only slight hæmorrhage. At 7.45 P. M. of the day of the operation the boy was quiet, his feet were warm, his cheeks were rosy, the temperature was but slightly elevated, there was slight facial paralysis, ptosis on the right side. Also a slight degree of divergent strabismus, and he was pleasantly humming as usual.

March 12.—Right pupil dilated. When the dressing was changed two ounces of the same kind of liquid first discharged made its escape. The locality was thoroughly syringed with carbolic acid water. Before a new dressing was put on he vomited, and was comatose for a few minutes. The breathing was quiet and slow, and fifteen minutes afterwards he was again conscious, his pulse rallied and his pupils responded to light. Hummed for half hour in succession. 6.30 P. M.—Patient slept up to 2 P. M. Pupils slightly dilated. 11 P. M.—Slept well,

but through the latter part of the night was restless and cried.

March 13.—Between 3 and 4 A. M. he cried a great deal and vomited often. Took milk and whiskey. 6 A. M.—Hands and feet cold; pupils slightly dilated; much discharge from cranial cavity. Carbolic acid, 50 per ct. solution, was applied to the intra-cranial portion of the pseudo-plasm through the opening in the cranium, and that within reach thoroughly destroyed.

March 14.—Patient's sleep was good. Pulse 160. Tongue furred. Hands and feet cold. Respiration, 32. Chloroform was given for the purpose of applying the 50 per ct. solution of carbolic acid, a portion of the intra-cranial tumor was removed, and also about a square inch of cranial bone which was thin and looked abnormal. 3 P. M.—He drank milk freely. His extremities were warm and he had had a passage from the bowels.

March 15.—General condition remained unchanged. Another small portion of bone was removed, and a loose portion of the intra-cranial tumor.

March 16.—Patient cried a great deal; was restless and cold; and there was a copious discharge from the opening in the cranial cavity. After the dressing was changed he was again quiet. 4 P. M.—A small portion of bone was removed and a large quantity of material belonging to the tumor. When the cavity was thoroughly cleansed there was brought into view a thick, whitish membrane, which pulsated under the finger. When pressure was made upon it a good deal of discharge took place from the right side. It was found that the whitish membrane was the dura mater, fastened to the brain, thickened, and changed in color. The brain showed no elasticity, and did not rise in the direction of the cranium. The intra-cranial surface from which the dura mater was removed was about four inches in length by two and a half in breadth.

March 17.—A small portion of abnormal looking bone was removed, and, immediately after, the patient had a chill that lasted five minutes. 6 P. M.—Sufficient discharge had taken place from the opening to penetrate the dressing. 8.30 P. M.—Discharge from the cranial cavity copious.

March 18.—Pulse regular; extremities cold; crying a little; still humming for hours. 2 P. M.—Breathing rapid; 48 per minute; pulse imperceptible. Conjunctiva injected and anæsthetic. The dressings were changed, stimulants were given, hot bottles were applied to the feet, but he became blue, still hummed, then became unconscious and died at 3.10 P. M.

The microscopical examination of the tumor proved it to consist of spindle-shaped cells, and large masses of cellular tissue, the latter mainly in the outlying portions. The surrounding bone was partly in the same condition, much material containing spindle-shaped cells being easily rubbed off. The thinness of the bone was principally due to compression by the tumor both from inside and outside. The dura mater exhibits strongly marked symptoms of a chronic inflammatory process. The fact, not even alluded to in a number of anatomical text-books, of the double composition of the dura mater, is beautifully evident. Two thickened layers can readily be distinguished and even separated. The change in the dura is mainly visible on the right side; falx and tentorium are less abnormal.

MIRYACHIT.

A NEWLY-DESCRIBED DISEASE OF THE NERVOUS SYSTEM AND ITS ANALOGUES.

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In a very interesting account of a journey from the Pacific Ocean through Asia to the United States by Lieutenant B. H. Buckingham and Ensigns George C. Foulk and Walter McLean,* United States Navy, I find an affection of the nervous system described which, on account of its remarkable characteristics, as well as by reason of certain

known analogies, I think should be brought to the special notice of the medical profession. I quote from the work referred to the following account of this disease. The party is on the Ussuri River, not far from its junction with the Amur, in Eastern Siberia.

"While we were walking on the bank here we observed our messmate, the captain of the general staff [of the Russian army] approach the steward of the boat suddenly, and, without any apparent reason or remark, clap his hands before *his* face; instantly the steward clapped his hands in the same manner, put on an angry look and passed on. The incident was somewhat curious as it involved a degree of familiarity with the steward hardly to have been expected. After this we observed a number of queer performances of the steward, and finally comprehended the situation. It seemed that he was afflicted with a peculiar mental or nervous disease which forced him to imitate everything suddenly presented to his senses. Thus, when the captain slapped the paddle-box suddenly in the presence of the steward, the latter instantly gave it a similar thump; or if any noise were made suddenly, he seemed compelled against his will to imitate it instantly, and with remarkable accuracy. To annoy him some of the passengers imitated pigs grunting, or called out absurd names; others clapped their hands and shouted, jumped, or threw their hats on the deck suddenly, and the poor steward, suddenly startled, would echo them all precisely, and sometimes several consecutively. Frequently he would expostulate, begging people not to startle him, and again would grow furiously angry, but even in the midst of his passion he would helplessly imitate some ridiculous shout or motion directed at him by his pitiless tormentors. Frequently he shut himself up in his pantry, which was without windows, and locked the door, but even there he could be heard answering the grunts, shouts or sounds on the bulk-head outside. He was a man of middle age, fine physique, rather intelligent in facial expression, and without the slightest indication in appearance of his disability. As we ascended the bank to go on board the steamer, some one gave a loud shout and threw his cap on the

*[†] Observations upon the Korean Coast Japanese, Japanese-Korean Ports and Siberia, made during a journey from the Asiatic station to the United States through Siberia to Europe June 3d to September 8th, 1882." Published by the United States Navy Department Washington, 1883, pp. 51.

ground. Looking about for the steward, for the shout was evidently made for his benefit, we saw him violently throw his cap with a shout into a chicken-coop into which he was about to put the result of his foraging expedition among the houses of the stanitza.

"We afterwards witnessed an incident which illustrated the extent of his disability. The captain of the steamer, running up to him, suddenly clapping his hands at the same time, accidentally slipped and fell hard on the deck. Without having been touched by the captain the steward instantly clapped *his* hands and shouted, and then in helpless imitation, he, too, fell as hard and almost precisely in the same manner and position as the captain. In speaking of the steward's disease the captain of the general staff stated that it was not uncommon in Siberia; that he had seen a number of cases of it, and that it was commonest about Yakutsk where the winter cold is extreme. Both sexes were subject to it, but men much less than women. It was known to Russians by the name of *Miryachit*."

So far as I am aware, and I have looked carefully through several books of travel in Siberia, no account of this curious disease has been hitherto published.

The description given by the naval officers at once however brings to mind the remarks made by the late Dr. G. M. Beard before the meeting of the American Neurological Association in 1880, relative to the "Jumpers" or "Jumping Frenchmen" of Maine and northern New Hampshire.*

In June, 1880, Dr. Beard visited Moosehead Lake, found the "Jumpers" and experimented with them. He found that whatever order was given them was at once obeyed. Thus one of the Jumpers who was sitting in a chair with a knife in his hand was told to throw it, and he threw it quickly so that it stuck in a house opposite; at the same time he repeated the order to throw it with a cry of alarm not unlike that of hysteria or epilepsy. He also threw away his pipe which he was filling with tobacco when he was clapped upon the shoulder.

Two Jumpers standing near each other were told to strike, and they struck each other very forcibly. One Jumper, when standing by a window, was suddenly commanded by a person on the other side to jump, and he jumped up half a foot from the floor, repeating the order. When the commands were uttered in a quick, loud voice the Jumper repeats the order. When told to strike, he strikes; when told to throw, he throws whatever he may happen to have in his hand. Dr. Beard tried this power of repetition with the first part of the first line of Virgil's *Æneid* and the first part of the first line of Homer's *Iliad* and out-of-the-way words of the English language with which the Jumper could not have been familiar, and he repeated or echoed the sound of the words as they came to him in a quick sharp voice; at the same time he jumped, or struck, or threw, or raised his shoulders, or made some other violent muscular motion. They could not help repeating the word or sound that came from the person that ordered them any more than they could help striking, dropping, throwing, jumping or starting; all of these phenomena were, indeed, but parts of the general condition known as Jumping. It was not necessary that the sound should come from a human being; any sudden or unexpected noise, as the explosion of a gun or pistol, the falling of a window or the slamming of a door, provided it was unexpected and loud enough, would cause these Jumpers to exhibit some one or all of these phenomena. One of these Jumpers came very near cutting his throat while shaving on hearing a door slam. They have been known to strike their fists against a red-hot stove, to jump into the fire and into water. They could not help striking their best friend, if near them, when ordered. The noise of a steam whistle was especially obnoxious to them. One of these Jumpers, when taking some bromide of sodium in a tumbler, was told to throw it, and he dashed the tumbler on the floor. It was dangerous to startle them in any way when they had an axe or a knife in their hands. All of the Jumpers agreed that it tired them to be jumped and they dreaded it, but they were constantly annoyed by their companions.

From this description it will at once,

* Journal of Nervous and Mental Disease, vol. vii., 1880, p. 487.

I think, be perceived that there are striking analogies between "Miryachit" and this disorder of the "Jumping Frenchmen" of Maine. Indeed, it appears to me that if the two affections were carefully studied, it would be found that they were identical, or that at any rate the phenomena of the one could readily be developed into those of the others. It is not stated that the subjects of "Miryachit" do what they are told to do. They require an example to reach their brains through the sense of sight or that of hearing. Whereas the "Jumpers" do not apparently perform an act which is executed before them, but they require a command. It seems, however, that a "Jumper" starts whenever any sudden noise reaches his ears.

In both classes of cases a suggestion of some kind is required, and then the act takes place independently of the will.

There is another analogous condition known by the Germans as *Schlaftrunkenheit*, and to English and American neurologists as somnolentia or sleep drunkenness. In this state an individual on being suddenly awakened commits some incongruous act of violence, oftentimes a murder. Sometimes this appears to be excited by a dream, but in others no such cause could be discovered.

Thus, a sentry fell asleep during his watch, and, being suddenly aroused by the officer in command, attacked the latter with his sword and would have killed him but for the interposition of the bystanders. The result of the medical examination was that the act was involuntary, being the result of a violent confusion of mind consequent upon the sudden awaking from a profound sleep. Other cases are cited by Wharton and Stillé in their work on Medical Jurisprudence; by Hoffbauer; and by myself in "Sleep and its Derangements."

The following cases, among others, have occurred in my own experience:

A gentleman was roused one night by his wife, who heard the street-door bell ring. He got up, and without paying attention to what she said, dragged the sheets off of the bed, tore them hurriedly into strips and proceeded to tie the pieces together. She finally succeeded in bringing him to himself, when he said he had thought the house was on

fire and he was providing means for their escape. He did not recollect having had any dream of the kind, but was under the impression that the idea had occurred to him at the instant of his awaking.

Another was suddenly awakened from a sound sleep by the slamming of a window-shutter by the wind. He sprang instantly from his bed, and, seizing a chair that was near, hurled it with all his strength against the window. The noise of the breaking of glass fully awakened him. He explained that he imagined some one was trying to get into the room and had let his pistol fall on the floor, thereby producing the noise which had startled him.

In another case a man dreamed that he heard a voice telling him to jump out of the window. He at once arose, threw open the sash and jumped to the ground below; fortunately only a distance of about ten feet, so that he was not injured beyond having a violent shock.

Such a case as this appears to me to be very similar to those described by Dr. Beard in all its essential respects.

A few years ago I had a gentleman under my charge who would attempt to execute any order given to him while he was asleep by a person whispering into his ear. Thus, if told in this way to shout, he shouted as loud as he could; if ordered to get up, he at once jumped from the bed; if directed to repeat certain words, he said them, and so on.

I am not able to give any certain explanation of the phenomena of "Miryachit," or of the "Jumpers," or of certain of these cases of sleep-drunkenness, which seem to be of like character. But they all appear to be due to the fact that a motor impulse is excited by perceptions without the necessary concurrence of the volition of the individual to cause the discharge. They are, therefore, analogous to reflex actions and especially to certain epileptic paroxysms due to reflex irritations. It would seem as though the nerve cells were very much in the condition of a package of dynamite or nitro-glycerine in which a very slight impression is competent to effect a discharge of nerve-force. They differ, however, from the epileptic paroxysms in the fact that the discharge is consonant with the perception—which is in

these cases an irritation—and is hence an apparently logical act, whereas in epilepsy the discharge is more violent, is illogical and does not cease with the cessation of the irritation.

Certainly the whole subject is of sufficient importance to demand the careful study of competent observers.

DIASTASIS OF THE TROCHANTER MAJOR, SIMULATING HIP-JOINT DISEASE.

By NEWTON M. SHAFFER, M.D.

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There are many conditions, which, in some important respects, resemble hip-joint disease. In some instances this resemblance is very close indeed, especially from an objective standpoint. The attitude of the patient, the position of the limb, the limp, the flattening of the nates, the asymmetry of the gluteo-femoral creases, and the modified joint mobility, which occur in true disease may be present in the simulated condition with the subjective element of pain in that region or in those regions where it is most likely to occur in the real disease. If, in a case presenting these features, there be added the element of traumatism as a direct cause of the symptoms, diagnosis may become difficult, and, as experience proves, errors are likely to occur under these circumstances.

The following case presents some very peculiar features and involves a condition which, so far as the writer knows, has not been described in connection with the differential diagnosis of hip-joint disease.

Miss B., a young lady of 17 years of age, of a marked nervous temperament, and a school-teacher by profession, consulted me in June, 1881, presenting for consideration the following history :

About three months before consulting me she was thrown from her horse, falling heavily upon a hard road and striking upon the right hip and side, the principal force being expended upon the trochanter major. Though not rendered unconscious by the shock, the patient can give no adequate idea of her sensa-

tion at the time of the accident. She was carried home, suffering a good deal from pain and shock, and placed in bed. She was unable at first to move the limb. It was over two weeks before she attempted to stand and several weeks elapsed before the patient could use the limb in locomotion. She moved about on crutches for awhile, and finally commenced to walk in a peculiar manner, with a decided limp and with pain "in and about the hip," especially after making an effort beyond a few steps. The pain was referred to the trochanter major, to a point behind and above it, and at times there was pain about the knee-joint. This, in brief, was the history given.

Before examining the hip-joint in detail I satisfied myself by careful measurements and tests that the limbs were of equal length and that no intra-capsular fracture existed.

I then examined the hip and the surrounding region, inspecting the suspected parts and comparing them with the opposite side. I found—and this was a very marked feature of the case—a very pronounced flattening of the right side of the nates. The right gluteo-femoral crease was slightly higher than the left. There was a slight flexion of the thigh accompanied by slight adduction and rotation inward. The pelvis was tilted upward on the right side, and there was a slight compensatory curve of the spine. The thigh muscles were perceptibly atrophied. In walking the patient limped. Her attitude was very like that of hip-joint disease—in the stage of beginning deformity. Pressure made upon the two trochanters simultaneously in a line toward the mesial plane gave rise to pain ; so also did pressure over the hip-joint on the right side. Concussion of the joint by striking the knee forcibly occasioned pain. All these facts, together with the history of traumatism suggested to me that there might be a condition of chronic articular osteitis, as a direct result of the injury, such, for example, as occurred in the case of F. H. P., which I reported in the Archives of Clinical Surgery for June, 1877.*

Those who are accustomed to making

* On Reflex Muscular Contraction and Atrophy in Joint Disease.

examinations in cases involving the question of the existence of hip-joint disease know, however, that there is nothing more fallacious than the objective signs alone. If there is any chronic inflammation of the joint, especially if there is commencing deformity, there will be sure to be some muscular protection of the articulation, which can not be counterfeited as successfully as the signs I have just enumerated. I therefore proceeded to make some careful tests as to the "muscular sense" of the suspected articulation.

The patient was placed in the *supine* position upon a hard couch. The various movements of the suspected joint were compared with those of the unaffected side. Flexion of the thigh was very slightly resisted. Adduction and abduction were normal or nearly so. Rotation and circumduction were slightly resisted, and were accompanied by what I thought was a very distinct cartilaginous crepitation at the hip-joint. Placing the patient in the *prone* position and holding the pelvis firmly with the left hand, I tested extension of the thigh. This movement was slightly resisted. So also was rotation of the thigh in and out in this position, and again I obtained the cartilaginous creaking. I again imagined that this crepitation occurred at the hip-joint. But I did not get any reflex muscular protection of the hip, which I would certainly expect to find had there been a condition of chronic articular osteitis. The muscular resistance was variable, as I proved by repeated examinations. These tests led me to think that there was no serious trouble at the hip. But I was at loss to account for the distinct, almost audible crepitation, which I felt had a value beyond the crepitation often found without any perceptible joint change.

Pursuing the examination further, in my effort to get a more decided expression from the patient regarding the peculiar crepitation, and the slight, though easily demonstrated limitation of joint mobility, I again tested rotation of the thigh with the patient in the *supine* position. On this occasion, however, I placed one hand over the trochanter major, while I performed the movement with the other. To my surprise, the crepitation seemed to be directly under

the hand which rested on the trochanter. Following up this clue, I examined the trochanter more closely, and found a false point of motion. I could then produce this crepitation at will by simply making movement at this point. In other words, I found that the trochanteric epiphysis had become separated from the shaft, and the most of the symptoms were explained.

I say "the most of the symptoms." There is no reason apparent to the writer, for example, why there should have been pain at the knee, nor why concussion of the hip-joint should have occasioned pain in this condition. Nor can all the symptoms be explained by the simple diastasis at the epiphyseal line. The girl was very emotional and apprehensive. She had been examined quite frequently, and had been told not only the important and leading symptoms of hip-joint disease, but had been told by several medical men that she had this disease. I do not doubt that the subjective element in this case was greatly influenced by these facts.

The patient was informed as to the nature of the trouble, and was advised to make, so far as she could, an effort to adapt herself to the novel condition of affairs. The apprehension regarding the danger of using the limb, against which she had been warned, was removed. The patient was assured that exercise in moderation would be a benefit. She left me much encouraged. After a month she returned, much improved in every particular, though the false point of motion and the crepitation remained. She walked with a somewhat peculiar, but not notably awkward gait, and had no pain at any point. The movements of the hip-joint gave no evidence of disease or inflammation. She tired easily, but walked without much inconvenience except after prolonged exertion. There was at the last examination no apparent increase in the displacement of the detached epiphysis and the muscles inserted into it have adapted themselves to the new condition of affairs in a very satisfactory manner.

RECENT AND IMPROVED METHODS OF APPLYING CHRYSAROBIN IN SKIN DISEASES.

By GEORGE HENRY FOX, M. D.

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Within the past ten years a hitherto unknown remedy has been introduced to the profession, has grown steadily in favor and has attained a recognition as one of the foremost agents in the local treatment of certain chronic diseases of the skin. Its great value is beyond all doubt, and many who have used it freely would sooner dispense with the local use of tar and mercury, old and valuable as these remedies are, than give up chrysarobin.

For several years after the introduction of this drug (under the name of chrysophanic acid) it was used in the form of an ointment of varying strength, and scarcely any one who tested its value failed to be struck by its peculiar effect upon the sound skin, and surprised at its beneficial action upon diseased patches. But there were objectionable features connected with its use in the form of an ointment, which could not be overlooked, and these were often so marked that they served in many instances to counterbalance the value of the remedy. In all cases the healthy skin became temporarily discolored, which was not a very serious matter, but at the same time the underclothing of the patient became permanently stained and usually ruined by a single application of the ointment. Furthermore, the effect of the remedy was found to be somewhat different in degree upon different skins, and in some cases a violent dermatitis was occasioned even by the use of a mild ointment, and this often proved to be worse than the disease for which it was applied. Under these circumstances many were led to give up the use of the remedy, while a few were prompted to seek a means which would obviate its objectionable qualities without impairing its efficacy in any marked degree. The efforts of the latter have been finally crowned with success, and it may be now asserted that the local effect of chrysarobin can be obtained without danger of its exciting a dermatitis of the healthy skin or causing a discoloration of the patient's

clothing. Various experimenters, both here and in Europe, have adopted different means to obtain this result until all have arrived at the conclusion that the chrysarobin must be incorporated in some elastic and adhesive varnish.

My first attempts to solve the question led me to the employment of a paste made by mixing the chrysarobin powder with a quantity of water. This was applied to the affected skin and covered with flexible collodion, or a little absorbent cotton moistened with the white of an egg, or a piece of gutta-percha tissue, the edges of which were glued to the skin by means of chloroform. This plan was effective but troublesome. I also tried chrysarobin sprinkled on plaster, and other devices which I need not mention. Finally I resorted to a mixture of chrysarobin and collodion, which made a neater application, though it lessened somewhat the activity of the remedy. About a year or more ago, having observed the peculiar effect of salicylic acid in softening corns and epidermic tissue in the form of scales, it occurred to me to combine this remedy with the chrysarobin in collodion, and my subsequent use of this pigment or varnish in both private and hospital practice has convinced me that this combination greatly enhances the value of the simple chrysarobin in collodion. It apparently causes it to adhere more firmly to the skin, and to produce a more marked effect upon the diseased patches. The formula which I have employed with the greatest satisfaction, and which at the New York Skin and Cancer Hospital is known as the "Pigmentum Chrysarobini Compositum" is the following :

R.	
Chrysarobini	10
Acidi Salicylici	10
Etheris	15
Collodii flexilis	q.s. ad 100

M.

In Europe the mixture of chrysarobin and collodion has been recommended by Sesemann, while gelatine has been employed as a vehicle for the chrysarobin by Unna and Pick. Recently Auspitz has recommended the use of chrysarobin in a solution of gutta-percha. This mixture was also recommended to me some time ago by Dr. W. T. Alexander

of this city. I have used this application in the treatment of a number of cases of psoriasis and it is certainly an elegant and an efficacious one. The chloroform has the advantage over ether in dissolving a trifle more of the chrysarobin, but the efficacy of the application would be increased, in my opinion, by the addition of ten per cent. of the salicylic acid, for the reasons which I have already stated. The use of the liquor gutta-perchæ, U. S. P., as a vehicle for the chrysarobin and salicylic acid is well adapted to use in private practice, but the use of collodion as in the formula given above is more desirable in hospital and dispensary practice, as the cost of the latter pigment is one-half that of the former. Of course, it must be carefully kept in a well-corked and preferably in a wide-mouthed bottle. It can be applied to the diseased skin by means of a small stiff paint brush, and should the pigment become slightly thick at any time, it can be made as thin as desirable by the addition of a small quantity of ether. In some cases it is advisable to apply the remedy in the form of a thick varnish, while in other cases, where only a slight effect is required, it is better to apply only a thin coating. For this purpose a larger quantity of ether should be used in the formula given above. Occasionally the pigment produces temporarily a stinging sensation, but this is scarcely worthy of mention when we consider the perfect relief from itching which frequently ensues. The yellow coating upon the skin dries very quickly, and if not disturbed by unusual friction or bathing, it remains upon the skin without incommoding the patient in the slightest degree for several days. It then begins to fall off, and usually requires a renewal. When severe pruritus has been present and is relieved, as is commonly the case upon application of the pigment, a second application should be made as soon as the coating begins to crack or peel, as at this stage the pruritus is very apt to return.

Before closing, let me mention briefly the affections in which the pigment which I have recommended is especially serviceable. Foremost of all stands psoriasis, in the local treatment of which chrysarobin is without doubt a

truly great remedy. No one can fail to appreciate and be thankful for the progress of medical science who considers how, less than ten years ago, psoriatic patients were persistently smeared with tar, and often smeared in vain, and appreciates the fact that now it is a comparatively simple matter to cause a speedy disappearance of the scaly patches in nearly every case. And it is another step in advance which has superceded the ointment of chrysarobin by applications of the remedy which do not ruin the clothing and inflame the healthy skin.

In the treatment of psoriasis the compound chrysarobin pigment is, in my opinion, the best application which can be employed in at least ninety per cent. of cases, and may be applied to all parts of the body with the exception of the scalp and face. Here, the use of ammoniated mercury ointment, which is of little value when applied to the trunk and extremities, will generally suffice to remove the eruption in a very short time. In chronic eczema of the trunk or extremities, where there is much thickening of the skin, with no moisture of the surface, the pigment will often produce as rapid and beneficial an effect as in cases of psoriasis. Intense pruritus is often immediately relieved by its thorough application, and refreshing sleep once more secured by the patient.

In lupus erythematosus of a chronic character the pigment may act beneficially, but I should hesitate to recommend it in this affection, as I have seen it aggravate and enlarge patches of an acute character in which congestion was a prominent feature. The pigment will act as a parasiticide in cases of ringworm of non-hairy parts, and in chromophytosis (*tinea versicolor*) no better remedy could be applied. It may also be employed in the local treatment of certain syphilitic eruptions. R. W. Taylor (*Veneral Diseases*) speaks of the benefit resulting from the combination of salicylic acid with chrysarobin in cases of hypertrophic and vegetating papular or tubercular syphilides. I have applied the pigment to patches of alopecia areata of the scalp, but have seen no beneficial effect. In acne of the back it has proved more serviceable, but it is mainly in psoriasis and in chronic squamous

eczema of the various parts of the body that the pigment may be applied with the expectation of achieving the most brilliant result.

SMELL — HYGIENICALLY AND MEDICO-LEGALLY CONSIDERED.

By CLINTON WAGNER, M.D.,

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Odors may be defined as impalpable bodies in the form of vapor, having a close analogy to odorous gases. Odorous substances when exposed to atmospheric air, lose in course of time their characteristic odor, and with the odor their volatile portions. This change involves an actual loss of weight. The function of smell, then, is that special sense by which we are enabled to recognize and distinguish the impressions made by odors upon the terminal filaments of the olfactory nerve; the only nerve concerned in this function. As an aid in the detection, diagnosis and prevention of disease, the function of smell assumes an important rôle in the economy. In the lower order of animals, it is more acute than in the human family, and by several authorities it has been asserted, but not proved, that in savage tribes it is more acute than in civilized races. By education, exercise and frequent practice, it is capable of a very high degree of development in the majority of cases; especially, if the sense of vision and hearing are lost or greatly impaired.

As a rule, foul smells are unhealthy or unwholesome, but habit may reconcile one to the most noxious and disagreeable of odors—for instance, the workers in sewers, abattoirs or rendering works, and certain industrial establishments; plumbers and those engaged in removing offal from the old-fashioned wells or privies in our large towns and cities, before the introduction of water closets into houses, were, as a class, not less healthy than other men; this, however, may be explained by the fact that these vocations compelled physical activity, and to a great extent in the open air, whereas the same amount of impure air, respired by one of sedentary habits, compelled to

reside in a dwelling to which it had access, the most serious consequences might follow.

A nuisance has been defined as "anything which interferes with the comfort, as well as that which injures the health directly."¹ I shall refer only to that variety of nuisance which is offensive, and recognizable through the function of smell.

Within the limits of or in the vicinity of most large cities, there are always to be found certain industrial establishments which poison the air and pollute the water; and the proximity of which we are made aware of, chiefly through the sense of smell.

The disagreeable emanations from fat and bone establishments, abattoirs, petroleum and guano depots, glue factories, gas works, soap works where fat is extracted from slops, lime kilns, breweries, oil refineries, the acid fumes from chemical works destroying vegetation, etc., while these establishments may not affect the general health of a community, those of a weak, delicate constitution, who reside in the vicinity, or who are compelled to pass and repass, will surely suffer.

Stables of large size in cities pollute the air in the neighborhood; the drainage of the average stable being defective, the liquid filth collects around the building, which is badly ventilated and damp, and the odor of ammonia from decomposed urine is ever present. There is a popular tradition that the air of stables is healthy; probably originating in the robust appearance generally of stable boys and grooms; but this is due to the active out-door life, horse-back riding or driving, and not to the vitiated air they breathe while in the stable, which on analysis has been shown to contain fragments of epithelium, hair, ovules, fungi, and odorous organic matter.

During epidemics of erysipelas and diphtheria, cases are more numerous and more fatal in the vicinity of large stables than elsewhere; this fact was established by the investigations of a Medical Commission in New York about seventeen years ago. Stables in cities are an absolute necessity, but with proper

¹ Hygiene, Public Health. Ziemssen's Cyclo-pædia.

attention to drainage and ventilation, the objectionable features enumerated may be almost if not entirely overcome. In military or other camps the function of smell will enable the medical officers to detect the nuisance in the form of noxious odors. Carburetted hydrogen and watery vapor are always found in excess in the air of malarial marshes, and sometimes sulphuretted hydrogen, which latter may be recognized by its pronounced odor, even if it exists in infinitesimal quantities. Camps become unhealthy from the accumulation in their vicinity of decomposing matters; if any such exist, the camp should always be made to the leeward of them; sinks especially should be located in this way, as fecal matter is apt to accumulate in the atmosphere and cause diarrhœa, dysentery, cholera, and typhoid fever. In badly ventilated and overcrowded rooms—for instance, the tenement houses so numerous in large cities—in school-rooms, theatres, churches and many places of amusement, the condition of the air is scarcely observed by the occupants, but one entering from the open air, at once perceives the pesty and sickening odor. Dr. Letherby, of London, found upon an analysis of the air of tenements, that it was deficient in due proportion of oxygen, contained three times the usual amount of carbonic acid, besides a quantity of aqueous vapor and albuminous matter.

Typhus and typhoid fever, scarlatina and diphtheria are constantly occurring in our tenement houses, and overcrowded and badly ventilated school-rooms, which might be prevented by heeding the timely warning given by the noxious odors. Only a short time ago a New York evening paper gave a thrilling account of what it termed a "Hoboken Pest Hole," and stated that a school house in Hoboken, in which for two years past "vapor reeking with deadly sewer gas, and air tainted with the smell of decomposing matter from marshy meadows, have been constituent elements of the sanitary condition of the school. Teachers were prostrated in their class rooms, and the ranks of the scholars decimated by typhoid fever." A few weeks ago, typhus fever from similar causes was developed in a large boarding-school in New York city.

Sanitary inspectors, quarantine officers and school teachers would in no way lessen their efficiency by the cultivation of the sense of smell.

In medicine and surgery the function of smell may be made useful as an aid in diagnosis. Small pox, for instance, has an odor readily recognized, as well as typhoid fever and diphtheria. Ozæna, in which there is osseous lesion or ulceration of the mucous membrane to any extent emits an odor which is of itself diagnostic. The sputum of phthisis has a sweetish smell, and in diabetes mellitus the odor of sugar can be detected in the breath and urine. The odors of the breath will sometimes aid us in deciding whether coma is due to alcoholic poisoning or other causes. In suspected obstruction of the bowels the matter vomited, if stercoraceous, may be detected by its odor.

According to Isham, of Chicago, the habitual masturbator has a "liquor amnii sort of odor." A peculiar smell is also emitted by lying-in-women. Formerly when mercury was given so largely and freely, early ptyalism was recognized by the odor of the breath.

Much importance was at one time attached by surgeons to the peculiar mouse-like odor of favus and that of pus from sinuses, as indicating, by a peculiar sanious smell, whether or not bone was involved. According to Heller, certain colors absorb odors more readily than others. Troops wearing dark uniforms contracted typhus fever more readily than those wearing light colors; dark gowns in dissecting rooms retained the odor of the cadaver longer than those of lighter colors. It has been shown also that black is the most powerful absorbent, next blue, then, in decreasing intensity green, red, yellow, and last, white. The absorption of odors he concludes, is regulated by laws which govern the absorption of light.

The sense of smell is capable of a high degree of development, and, as the science of medicine presents a wide field for experimentation, I have no doubt excellent results would follow. Numerous cases are on record of extraordinary delicacy of this sense acquired by cultivation. The celebrated case of James Mitchell, born deaf, dumb and blind, who could recognize by smell friends from

strangers as they entered his room. Humboldt states that the Peruvian Indians, by smell, with their eyes blindfolded, can recognize the several races of men.

A gentleman of my acquaintance engaged in the wholesale cigar business, has so cultivated his sense of smell that he can take a large number of cigars, about twenty, and by the odor accurately decide the quality and market value of each. An odor may fail to make an impression upon the nerve filaments, if the sense of smell has been subjected to the same odor for a very long period. The following case illustrates this fact: An inspector of flour consulted me about a year ago; he stated that for twenty years he had inspected flour by smell, and had acquired remarkable expertness in detecting musty flour and in grading the various brands. About three months before consulting me his ability to distinguish between good and bad flour began to decline. After making several blunders he decided to seek advice. I found that his sense of smell was perfect except in regard to flour—the odor of which he could not recognize. I advised him to refrain from exercising his sense of smell in any special direction for six months.

The North American Indian does not, as stated by Humboldt, follow the trail of the enemy he may be in pursuit of by the sense of smell, but by sight. I have frequently seen them trail and accompanied them on the march in pursuit of the enemy, and have never observed evidences of extraordinary acuteness of smell among Indians, nor do I think that the statement that the sense of smell becomes more acute as we descend in the human scale has any foundation in fact. On the other hand many of the inferior animals have acuteness of smell to an extraordinary degree, the dog, for instance, especially the hunter—and it is impossible to approach an herd of buffaloes, antelopes or deer from the windward side. Mules employed in deep mines detect at once the presence of choke-damp or fire-damp, and rats always flee before the explosion takes place. These creatures, that are regarded by most persons with loathing and disgust, are zealously protected from harm by the miners, who may at any moment,

unexpectedly, owe the preservation of life to their quick and sensitive smell, otherwise known as instinct.

In undertaking legal action against what is termed a nuisance by reason of noxious odors emanating therefrom and thus affecting the health of those living in the vicinity, as well as those who are occasionally there, it is important to remember that individuals may become reconciled to the most offensive effluvia, so that as Chitty* states, "it will be found that the evidence of numerous witnesses of considerable credit that they have experienced no unpleasant sensation will endanger a verdict; whilst the contrary evidence of others who only occasionally have passed near to the nuisance will clearly establish that to them it was intolerable. In these cases if the nuisance be near to a highway along which all persons have a right to pass, affirmative evidence of one or two witnesses of credit ought to have weight."

In England poisoning of the atmosphere by emanations from industrial establishments has been carried to a greater extent than in any other country, but for some time past efforts have been made to lessen the evil by legislative enactment.

In France, even where there is no positive evidence of injurious effects, the owners are compelled to have the noxious vapors condensed or consumed. There are several other cases in which claims for damages can legally and justly be made; for instance, in accidents occurring upon railroads, steamboats, and other modes of conveyance, one may receive a blow upon the occiput or any other part of the head; there *may be no evidence of injury, perhaps, other than bleeding from the nose, yet total loss of smell ensues.*

In such cases the defense would have great difficulty in proving the claim fraudulent. If submitted to an expert, who, upon examination, discovered complete occlusion of the nares from tumors or polypi, or an exostosis or paralysis of the alæ, or excessive hypertrophy of the mucous membrane covering the turbinated bones, the fact might be established that anosmia existed before the accident. If it were generally known that total loss

* Medical Jurisprudence.

of smell may follow an injury as above described, I have no doubt that claims for damages in accident cases would be more frequent.

The inhaling of pungent odors to excite sneezing and to produce coryza cannot be regarded as a test of the ability of the party to smell.

A powerful noxious odor, such as sewer gas, or illuminating gas inhaled suddenly and in large quantities may produce loss of smell, just as a strong, brilliant light may cause loss of sight.

Dr. Notta relates an interesting case of this character :

In these days of extensive street excavations, the frequent sudden explosion of underground steam-pipes, etc., a sewer or illuminating gas main may burst, parties may be standing or passing directly over the place of breakage, and, as in Dr. Notta's case, total loss of smell may result. Those injured in this way could surely have a just claim for damages against the city or corporation for the loss of so important a sense as that of smell.

In cases of sudden and suspicious deaths the sense of smell may detect, if in the stomach, certain volatile poisons, such as prussic acid, oil of bitter almonds, savine oil, turpentine, ammonia, alcohol and chloroform. The peculiar smell of lying-in-women may lead to the detection of a miscarriage if an attempt at concealment is made.

The sense of smell may be made useful as a test for rape. At a recent trial for that crime in England, the medical man claimed that on pushing back the foreskin of the penis of the accused there was an odor perceptible peculiar to women.

It is claimed also that the insane have a peculiar and characteristic odor, but if this were so the legal profession would probably long ago have made use of it as an evidence of unsound mind in those accused of crime.

HYPOCHONDRIASIS.

A CLINICAL LECTURE, DELIVERED AT THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

By WM. PEPPER, M.D.,
Professor of the Practice of Medicine.

Young man, aged 24, born in this State, a resident of Luzerne county, on

the whole of good habits, occasionally drinks beer; has perhaps used tobacco to excess; he is a somewhat heavy smoker. He always smokes a pipe, but does not chew; he says he uses two and a half to three pounds of tobacco a month. His father has a large family, all but him being girls. He was always tall and strong, and since his twelfth year he has been doing a full man's work. He has had no venereal or other serious diseases, but since his twentieth year he has practiced masturbation occasionally. He had the specific fevers of childhood, but no disease since. His father and mother are healthy, so are all of his sisters. He is the oldest of the children. There is no tendency to disease in the family.

Last fall he experienced a feeling of tension and tightness in the head, his spirits became depressed, he became morose and irritable, and his appetite failed. Since then he has not been able to work steadily, and he has gradually fallen into the state you now see. He is silent, brooding, melancholy and desires solitude. Ask him what is the matter, he says that his head is uncomfortable; he has no ambition, he don't care to go to work. His functions are all well performed, his appetite is fair; digestion good; urine normal; he has no palpitation; no shortness of breath; hearing and eyesight are both good; he has no severe pain in the head; his memory is, however, sluggish. When we investigate the man we find no cause which should prevent him from working. He complains of irregular headaches, dizziness, some deafness; he is quiet, melancholy, his countenance is dull, expressionless. It is an interesting case of a very common condition; particularly hard to relieve. It is an instance of what may be called hypochondriasis or melancholia. There is no suspicion of organic mental failure. An idea often encountered, in fact, too often entertained by the patient himself, is that it is but the commencement of a series of mental disorders gradually tending toward lunacy. In consequence they grow despondent—it may be so extreme as to lead to the most dreadful acts. This affection is not to be ranked among the mental derangements, yet it can be seen that it links itself to these. The more advanced form

of same condition is much allied to and gives rise to most serious mental disorders. They frequently become objects of solicitude to their family and friends. They are treated as if some grave misfortune was about to occur to them. Where there is a family tendency to mental disorders it is more apt to be combined with serious derangement. In most such cases we are apt to find a deficient nerve tone.

In this case his mother and all the children are living and well, his father is healthy and active. He is probably free from all predispositions.

The causes which usually bring on the condition seen in our patient are depressing in character. No cause is so marked as overstrain of the nervous system. Whether the excessive work falls on the mental, motor or digestive system, I do not care through which avenue the nervous system is approached, the conditions resulting will be the same. Injurious mental strain, or, as here in this case, injurious motor strain before the nervous system was properly developed lead to just such conditions. When yet a mere boy of twelve years, lead on by the want of his parents and being probably ambitious, he was led to do the work of a man; he made use of excessive and improper exertion. His father said that about his eighteenth year he appeared to have no limit to his strength. Many times while many other workmen were standing about he would go alone to the heaviest loaded cars, and unaided, would push them into the shops. This excessive, premature and constant wanton squandering of nerve power had a great deal to do in bringing about the state we see him in now. This alone will explain many of the phenomena which exist here.

The heart, lungs, stomach, liver and kidneys are usually about normal, but yet in certain organs we will see certain states which will help us in treatment. We will see that while the heart is normal it is very rarely active—it is sluggish. The heart sounds are excessively weak and feeble, the muscular element is excessively poor. On making him walk up and down the room we find his heart beats are not much excited, the pulse beating but about 84. The heart becomes somewhat frequent, but not much

excited; its sounds are still feeble and the pulse is remarkably small and weak. The circulation is weak and sluggish, especially the capillary. The hands are blue and torpid; it seems to be the hand of a moribund. When pressed the color disappears and returns but slowly. This is doubtless the condition of all the capillaries of the man's body, and consequently the functions of the various organs are impaired. It is probably largely due to the want of motor nerve power. Now to speak of the digestive functions: we will usually notice that the appetite is diminished, but it may be good; but in either case the digestive functions are but poorly performed. There is usually flatulence, eructations, the tongue is coated—it is soft, big, flabby, marked by the teeth on the edges, but not heavily coated; the abdomen is full; the bowels are sluggish, due to the nervous depression.

In some cases, and a most important derangement this is, the gastric symptoms are so prominent from even an early period, that they are frequently treated only for the dyspeptic complaint. Irregular meals, hasty eating and overwork, three factors which are but too apt to be combined, are very apt to give rise to such a condition. Very early there is a failure of the digestive powers, a feebleness of digestion, a sense of weight, a crawling and a feeling of distress in the epigastrium, which soon may give rise to reflex head symptoms, and ultimately may terminate in most serious brain trouble. The nerve centres are at first exalted, the slightest irritations giving rise to exaggerated reflexes. The constant, incessant use of the nerve centres is the most depressing of all possible conditions. Among the worst types of nervous depression is melancholia.* This man has evidently abused himself enough to have given rise to this derangement of the digestive powers.

He tells us that he had marked loss of appetite before he came. Now it is, however, pretty good; he can eat a fair meal. Bowels are pretty regular. He says that he is feeling pretty good, and that he feels somewhat better than when he came here on the first of April.

It may be seen from this man's history, as well as appearance, that he must

have had a good constitution, or else he would not have been able to stand such excessive strain as long as he did.

Often beside derangements of the various organs we find certain definite local irritations which may perhaps in part account for the consequent mental affection. We very often find such seats of irritation in the sexual organs, the ovaries, and uterus, in the female, and the generative apparatus in the male. In this case this source of irritation has been operating since his twentieth year. Although it has been acting, yet it appears from patient's statement not to have been excessively indulged in. Had this cause been operating from early age, particularly had it been practised excessively, it would undoubtedly had a most profound influence. But even in this case the fact of the unnatural excitation, with the consciousness of the impropriety, and on endeavoring to break the habit finding his inability to do so, failing time after time, must have exercised a most depressing effect. It might perhaps be said that prolonged masturbation with a protracted struggle with the habit, with at each time the defeat of the individual's will, and with these conditions slight torpor and irritation of the stomach, depressing emotions and overwork will bring about most aggravated types of this painful condition. To counterbalance this group of agents this man had a strong constitution and mountain air, but yet he succumbed.

In all such cases we should ascertain the state of the nerve centres as well as of the spinal axis. Often not so marked cerebral irritation do we find, as irritation of the spinal motor tracts. On examining his spine by both light and hard pressure we can find no tenderness nor any sore spots at all. This is quite a favorable feature of the case. Very frequently there exists a morbid irritability of the spinal axis, usually at the cervical, dorsal or lumbar enlargements. We might call such cases nervous dyspepsia; we have always doubtless more or less anæmia present with failure of cardiac power. It is an exhaustion of the vital powers of all kinds, with a general derangement of the system.

The prognosis is usually favorable.

The treatment is most interesting, and

is apt to tax the firmness, kindness and judgment of the physician to the fullest extent. Such cases are very apt to get into the hands of quacks, and a patient of this kind would prove to be a mine to such an individual. Once, when in possession of the knowledge of the performance of masturbation, the quack would so work on the mind of the patient that he would extort from him the last dollar.

The patient should have a clear understanding of the case. He should be put at rest just as he is at present. In cases where patient can afford to travel nothing would be better than a trip to Europe or to some of our western states. Such a trip would prove specially beneficial could he procure the services of some manly doctor who understood the case and had tact and firmness enough to manage it. Next best to this, as I have just said, is rest. With it may be some light duties.

Although we have the evidence of the use of tobacco, yet I think that this has done him no special harm. We might limit him to a few pipes of light tobacco daily. Perhaps, however, it will be best to stop it entirely. I do not think there is any damage in doing this; sleep may be lost for a night or two. We must also endeavor to remove all sources of irritation from nervous and digestive systems. We want, in the first place, a carefully regulated diet. The stomach is not to be overfed. He is to have plenty of food given frequently, so that the stomach is not empty for any length of time.

If there any local irritation of stomach, sexual organs or spinal axis, it must be relieved. Should the tender spots be found along the course of the spinal axis, counter irritation must be used. But even when no such tender spots are to be found, I think the hot iron often does great good. Part of the good thus affected is moral and part is probably due to the shock. I have noticed that such cases get well more quickly for it. In cases like the present, medicines which are ordinarily used to act on the nervous system do not appear to be of much importance. As soon as the nervous system by rest and diet has its tone re-established, and is by counter irritation relieved of that, then we can safely

begin. Then no medicine will be more valuable than preparations of phosphoric acid or the hypophosphites. These are exceedingly valuable. They are not irritable to the stomach; they aid digestion, and are positively useful in these conditions. They are to be preferred to phosphorus, as this latter is an irritant to the stomach. The phosphoric acid is to be given in doses of 10 to 30 gts. in a wineglassful of water after each meal.

During the few weeks he has been here, he has markedly improved under the treatment I have detailed to you. We will continue this treatment for a while longer, and then send him home with directions to perform light work.

ABSCISION OF STAPHYLOMA.

A CLINICAL LECTURE DELIVERED AT
THE COLLEGE OF PHYSICIANS AND
SURGEONS, NEW YORK.

BY DR. C. R. AGNEW,

Clinical Professor of Diseases of the Eye and Ear.

This boy is eight years old. Four and a half years ago he had scarlet fever, following which there was ulceration of both corneæ. You observe a thimble-shaped tumor, or swelling, projecting between the edges of the eyelids of the left eye. There is extensive staphyloma of the cornea. Following the scarlet fever the left cornea was deeply ulcerated. A cicatrix resulted from the ulceration, but it was not strong enough to limit the outward pressure of the contents of the eye. There has been a little increase in the aqueous humor, and as that occurred, the cicatrix yielded to the pressure. This bulging in a thimble-shape has gone farther and farther, being inflated, as it were, not by air as in case of a soap bubble, but by an increase of the aqueous humor.

We cannot expect, in such an eye, by any surgical interference to restore vision. The question occurs whether we should take the eyeball out, or whether we should leave as much of it behind as we may, removing only the staphyloma. I shall attempt to do the latter. The reasons for doing so are: 1. That the deeper parts of the eyeball are free from disease. 2. That the resultant stump will have freer motion, and

therefore make the artificial eye more life-like, and 3. The more the contents of the orbit are preserved, and the more free and natural their movements are, the more symmetrically will the eyelids and the muscles and bony parts of the corresponding side of the face be developed. I propose, therefore, instead of enucleating the eye, to remove the tumor by what is called ablation, or abscision. Having put him under ether, I shall pass three curved needles, each armed with a suture, through the sclerotic edge, close to the base of the staphyloma. I shall then cut off the projecting mass, and having drawn the needles through, tie the sutures so as to close up the elliptical opening which will be left by the removal of the staphyloma.

In a case where you attempt ablation, and thus cut off the projecting staphyloma, and allow the escape of all the aqueous and a portion of the vitreous humor to occur, there is an immediate tendency to hæmorrhage from the choroidal vessels with detachment of the retina. Where that occurs you should proceed at once to enucleate the eyeball, as otherwise your patient may be subjected to the pain and delay of a most tedious panophthalmitis, resulting in the shrinking of the eyeball into a mere button-like stump, filled with exudation, and which may undergo calcific degeneration and threaten the other eye by inducing sympathetic disease. But it is well to have an understanding in regard to that before commencing the operation, so that if such an accident should occur you may feel at liberty to proceed, as indicated.

I use for the sutures a very fine black silk thread, such as is prepared for the sewing machine, putting it double through the eye of the needle and waxing the ends. The needles should be of such a size and curvature that about one-third will be hidden as it passes through the staphyloma, while a third will project on either side.

The instruments needed are: 1. A spring speculum. 2. A pair of fixation forceps. 3. A Beer's or Graefe's cataract knife. 4. A pair of scissors of medium size and curved on the flat. 5. A pair of strabismus forceps, and 6. A needle-holder.

Having separated the eyelids with the

speculum, and fixed the eyeball with the fixation forceps, I proceed to introduce the needles, one through the middle of the base of the staphyloma, and one on each side, at a distance of about three millimetres from the central one. I now, with a knife, transfix the tumor at its base, and cut out, with a gentle sawing motion, about half a millimetre in front of the point of entrance of the needles. I now seize the flap thus formed, with the strabismus forceps, and with the curved scissors complete the removal of the staphyloma by cutting it off close to the needles at their point of exit. I now carefully draw through the needles and tie the sutures, first the central one, and afterwards those on the sides, and the operation is done. Instead of using sponges in the operation, I would recommend you to employ absorbent cotton for cleansing the wound. The stitches should be left in about four days, when they may be removed. A flannel bandage and absorbent cotton is put over the eye after the operation, and removed at least once in twenty-four hours, so as to keep the parts clean. Vaseline should be applied to the surface of the lids before adjusting the bandage. The patient will go from here to the Manhattan Eye and Ear Hospital.

(One week later.)—You will recollect this little man from whose left eye we removed a thimble-shaped staphyloma last Tuesday. The object in view in removing it was to relieve him from the irritation which such a projection causes, and also of the deformity which rendered his presence with other children a source of annoyance. The stitches were allowed to remain in until yesterday (six days). The wound is healing very kindly.

I would here warn you against slicing off the staphyloma so as to leave a circular opening. In closing such an opening with sutures there is always an unpleasant *puckering* of the eye-walls at the extremities of the wound. These prominences will, for many months, interfere with the comfort of the patient in wearing an artificial eye. By taking pains to make the opening horizontally elliptical, the formation of any such puckered prominences may be avoided.

Selections from Journals.

Noble Smith on the Treatment of Caries of the Spine: With Cases.

Although it is a well-established principle in surgery that the most important part of the treatment of caries of the spine is rest of the diseased parts, yet there is no universally recognized means by which such rest should be secured. I have, therefore, thought that, as the treatment I have adopted has proved remarkably successful, the description of the principles which I have followed, and the records of the cases, may be of some interest to the members of this Association.

In recognizing the very serious nature of the disease, and the fact that, according to usual experience, even when great care has been bestowed upon patients, many of them have died, it has seemed to me desirable, when the disease is in an active stage, to use every available means to keep the spine at rest, both by mechanical apparatus, and by recumbency, and to sacrifice any possible benefits which might accrue to the general health from exercise, in order to secure the utmost repose of the vertebræ. In some subacute cases, however, and in all cases when the patients have sufficiently improved, I have allowed gentle exercise to be indulged in, while the spines of the patients have been thoroughly fixed mechanically. Good food, appropriate medicine, and, as far as practicable, fresh air, have also formed part of the treatment. Many of these patients had been suffering considerably in their general health before they were treated in the manner I am advocating; and the effect has been most favorable, not only in arresting the disease, but also in greatly benefiting their general condition, and in gradually restoring them to perfect health.

Whatever mechanical apparatus is used to fix the spine, it should, I would urge, be made to act upon the following principles.

1. To support the upper part of the body and relieve the diseased (anterior) parts of the vertebræ from undue pressure, without interfering with free thoracic respiration.

2. To control incurvation of the spine below the seat of disease ; because, if it does not do so, the diseased surfaces will still be pressed and rubbed together, notwithstanding the fixing of the upper part of the spine.

3. To be so constructed that the surgeon can himself alter it in accordance with the progress of the case.

The instrument should form a back-splint, which will act as an immovable artificial spine, and the real spine is to be fixed by fastening the shoulders (drawn backwards), and the abdomen, and the pelvis, to the splint.

Thus the spine is fixed while the thorax remains free for respiration (a very important point).

Plaster-of-Paris jackets do not thoroughly fix the spine ; they interfere with thoracic respiration ; they allow the accumulation of dirt ; they interfere with perspiration ; they often cause constant discomfort ; they obscure the region of the disease, and hide ulcers and abscesses when these form ; and cannot, practically, be altered sufficiently often.

We all know that many cases have been cured by plaster-of-Paris jackets ; but, for the reasons now given, I discard the use of this mode of attempting to fix the spine, in favor of the use of an apparatus made upon the principles above described. The action of an instrument upon those principles may be, to a certain extent, attained with Dr. Taylor's antero-posterior support, and with Dr. Shaffer's modification of it ; but an apparatus which I have found far better



Fig. 1.—Diagrammatic Representation of the above Principles of Support.

for the purpose, is that devised by Mr. Chance, and used by him at the City

Orthopædic Hospital. This instrument I have used in preference to all others for nearly three years.

Whatever form of splint or instrument is used, it should, I consider, be made upon the principles above advocated ; but no instrument will be of much use unless the surgeon devote his attention to its adjustment and readjustment.

No class of cases require more patience, on the part of the medical man, than those under consideration. The surgeon must never cease in his endeavors to fix the spine in a suitable position, until he has succeeded in relieving the patient from all pain and discomfort ; and, at the first arrangement of the instrument, this result may not be easily obtained. Then the position effected, which may be correct to-day, may be wrong in a few days' time ; for, even under the most favorable circumstances, the relation of the diseased bones to one another may alter from day to day until ankylosis commences. For these reasons, I prefer using an apparatus which will allow alterations to be made by the surgeon himself ; and the comfort of the patient is the best indication he can have of the result of his adjustment.

Great attention should also be bestowed on providing for the comfort of the patient during recumbency ; in many cases, the prone position, upon a properly constructed Verral's couch, will be found the most suitable.

Of the cases I have treated, one was that of a child whose lungs were gangrenous when I first saw her. I could only ameliorate the patient's sufferings until death took place soon afterwards. All the other cases have done well.

CASE I.—J. H., aged 19, had caries, centered in the eighth dorsal vertebra. The first symptoms appeared at three years of age. The treatment during early life consisted in recumbency only. Of late years, the angle had been increasing, and the thoracic walls collapsing, accompanied by aching of the back. An instrument with crutches had been made for him, which produced so much discomfort that it soon had to be discarded. I first saw this patient in September 1880 ; and I had an instrument made for him upon the principles already described, which almost immediately relieved him from his sufferings. His

chest soon began to develop in capacity, his height increased three-fourths of an inch, and he has continued to derive benefit from the treatment up to the present time.

There was no appearance or history of scrofula in the patient, or in his relations.

CASE II.—July, 1881. Mr. C., aged 21, was sent to me by Dr. Heath Strange. He had caries, centred in the fourth and fifth lumbar vertebræ, of eight years' duration from the time of the first symptoms. The disease was gradually increasing; there was very little pain, but lumbar abscess existed. I fixed the spine, and immediate relief was experienced. The treatment was continued for eight months, when the spine seemed to be ankylosed.

CASE III.—January, 1882. A. W., aged 8, had caries of all the dorsal vertebræ, and apparently also of the lower cervical and upper lumbar vertebræ. It was of five years' duration, and was attributed to a fall, when the child undoubtedly hurt his back. Protrusion of vertebræ was noticed four months after the accident, and was then the size of a walnut. The child was at once taken to a general hospital, where a plaster-of-Paris jacket was applied. The jacket was never comfortable to the patient. Six plaster-jackets were applied, each being kept on for one month. The child was never free from pain, and the deformity was increasing all the time. The boy was then kept at home for a few months, and remained recumbent. He was next taken to a special hospital, where a leather splint was moulded to his back. About this time, abscesses appeared; lumbar and then psoas. There were two

all of which a large quantity of pus was discharged. The splint was less uncomfortable to the patient than the plaster-of-Paris jacket; but still it hurt him, and the deformity and general condition got rapidly worse.

In January, 1882, I first saw him. It was twelve months since he could walk; he had been supporting himself day and night for six months upon his arms and



Fig. 3 Represents the Patient (Case III.) improved in condition, and walking about; September, 1883.



Fig. 2 Represents the Appearance of the Patient (Case III.), in January, 1882, almost lifeless and with the lower extremities paralysed.

openings in the back, one at the back of each thigh, and one in each groin, from

knees in the prone position, his mother not being able to persuade him to rest in any other way. He was in an extremely emaciated condition; and neither Mr. Curgenven nor I thought that he could live many days. Upon January 11th, I fixed his spine with an instrument. On January 13th, I found him very comfortable, and able to turn in bed for the first time for a long period. I then had a prone couch made for him, which he highly approved of. Many complications arose, which required considerable attention and frequent alteration in the adjustment of the splint. He gradually rallied. He can now walk about comfortably; two of the abscesses have healed, and his health is gradually improving in every respect. The destruction of bone seems to have ceased

from the time of commencing this treatment. There was no history of scrofula in the patient or in his relatives.—*British Medical Journal*.

Speck on the Effect of Cooling on Respiration.

The results obtained by Dr. Speck from experiments on this subject are that a cold bath, besides causing a marked diminution of the temperature, produced a moderate increase in the respiratory rate with corresponding alteration in the absorption of oxygen and excretion of carbonic acid, and a very slight increase in the activity of the oxidation processes in the body. The latter increase occurs about twenty minutes after the bath, and then is succeeded by a slight diminution. The respiratory rate, which is increased during the bath, becomes after it normal, or sinks under the normal and rises again twenty minutes after the bath, and then remains increased for a long time, the respirations being deeper than usual. The author did not observe the marked increase of the oxidation processes which most others have noticed. (*Deut. Arch. für klin. Med.* p. 375, vol. xxxiii.)

Cohnheim and Roy on the Circulation in the Kidneys.

Cohnheim and Roy have made a number of observations on the circulation in the kidneys by means of Roy's oncograph, which consists of a metal capsule lined with delicate membrane, the space between the metal and the membrane being filled with oil. The oil communicates by means of a tube with a recording apparatus, and the kidney being enclosed within the membrane, any alterations in its volume are recorded automatically. The vessels and nerves pass freely through a proper aperture. They find that usually the amount of blood circulating in the kidney, as shown by the increase and diminution in its volume, rises and falls in perfect parallelism with the curve of general blood-pressure, and like it exhibits large respiratory elevations and smaller elevations

corresponding to the pulse. Partial suffocation causes, as is well known, a great rise in the blood-pressure, but in place of increasing it diminishes the volume of the kidney, showing that the vessels of the organ have become much contracted. The contraction is due to stimulation of the nerve-centres, which stimulation is conveyed to the kidneys through the vascular nerves. When all the nerves passing to the kidneys are divided at the hilum, the volume of the kidney increases as the blood-pressure rises during suffocation. This is not the case if one or both splanchnics only are divided, which shows that the splanchnics do not contain all the vaso-motor nerves of the kidney. Irritation of sensory nerves such as the sciatic causes rapid rise of blood-pressure with diminished volume of the kidney, and this lasts a considerable time after the irritation has ceased. Poisoning with strychnia also causes a rapid rise of blood-pressure, and a great diminution in the volume of the kidney, so long as the renal nerves are not destroyed. Irritation of the central end of the divided splanchnic causes much contraction of the renal vessels in both kidneys: the effect is just the same as that of irritation of the sciatic or any other sensory nerve; but irritation of the peripheral end of the splanchnic has a similar action, causing great diminution in the size of the kidney on the same side at least, and great rise in blood-pressure. The kidney on the other side is not so certainly affected by irritation of the peripheral end of the splanchnic: sometimes it contracts, but sometimes it increases in size along with the rise of blood-pressure. Neither irritation of the splanchnics nor of the nerves of the kidney as they enter the hilum give any evidence of vaso-dilating nerves: irritation of both was constantly followed by diminution in the size of the kidney. The circulation in the two kidneys goes on independently, and closure of the renal artery on one side by a clamp has not the slightest influence on the circulation in the other kidney. The application of ice-cold water to the skin had, contrary to expectation, very little or no action at all on the circulation in the kidneys. (*Virchow's Archiv*, vol. 93.)

Fothergill on Stewed Fruit for the Gouty and Dyspeptic.

Dr. Milner Fothergill recommends the use of stewed fruits in many instances of gout and dyspepsia. Sugar is undoubtedly objectionable to many, but it is by no means necessary to add sugar to stewed fruit; if the acidity be neutralised by an alkali, little or no sugar is required. Thrifty housewives have long been familiar with the fact, that the addition of a small quantity of the bicarbonate of soda to stewed fruit reduces the acidity, so as to save the necessity of much sugar. If about as much bicarbonate of potash as will lie on a shilling be added to each pound of fruit, it will be found sufficient to neutralise the acidity, and to bring out the natural sweetness. Milk puddings and stewed fruit are excellent for the dyspeptic, the bilious, and the gouty.—*Lancet*.

The British Medical Journal on Tears of Blood.

This rare phenomenon, the reality of which has often been doubted, seems, however, to occur under certain circumstances. Damalix has published an interesting paper on this subject in the *Archives d'Ophthalmologie*. He was led to study it by the observation of a case in M. Panas's wards. The patient, a young hysterical girl, said that she had often noticed a flow of blood from her eyes, and spots of blood on her handkerchief after wiping them. For some time the hæmorrhage occurred every night. A careful examination of the eyes showed nothing abnormal, but there were photophobia, facial neuralgia, and considerable blepharospasm. This case, as M. Damalix himself says, cannot be considered as conclusive, in spite of the probable veracity of the girl and her parents, as the hæmorrhage was never seen by him. But there are on record some observations which do not leave room for doubt. In a case of Causer, and in another of M. Brun, the observer could actually see the blood flowing from the eyes like tears; there was no possibility of trickery and microscopical examination of the fluid showed that it was really blood. As for the diagnosis, the name blood-tears must not be applied to the various forms of hæmorrhage caused by some organic lesion of the

mucous membrane, such as small polypi, &c. The true form has nothing to do with any visible lesion, and the course of the accidents is remarkably irregular. Sometimes there are no premonitory signs, the blood appearing without effort or pain; in other cases, the patient feels for some time pain in the forehead, or at the root of the nose, or, it may be, a feeling of tickling and heat in the lids, which disappears when the blood begins to flow. The amount of blood lost varies from a few drops to a wineglassful; the flow never lasts more than a few minutes, is always intermittent, and generally coincides with other hæmorrhages in the skin or mucous membranes, or, on the contrary, with *suppression mensium*. A study of the etiology of the disease shows that it is most frequent in hysterical women suffering from anæmia or hæmophilia.—*Brit. Med. Jour.*

Ridlon's Splint for the Treatment of Deformity at the Knee-Joint Due to the Reflex Muscular Spasm of Chronic Osteitis.

FIG. 1 from a photograph, showing the splint and key. The splint consists of two bars of annealed steel jointed in an antero-posterior hinge, the action of which is regulated by a section of a toothed wheel and an endless screw worked by a key, and two pieces of sheet steel lined with flannel and chamois, and rivetted to the bars.

To fit and apply the splint, mould the pieces of sheet steel, one to the anterior surface of the thigh, and the other to the anterior surface of the leg. With the aid of a pair of monkey-wrenches bend the bars so that they will lie along the anterior surface of the thigh and leg, and arch over the knee from a point an inch or an inch and a half above the patella to the tuberosity of the tibia, about an inch away from the surface of the knee, and with the hinge directly anterior to the nominal centre of motion of the knee-joint in the lower end of the femur; then rivet on the pieces of sheet steel and sew on the lining. Half a dozen holes should have been made in each bar, and numerous small ones about the borders of the sheet-steel pieces by the instrument maker; but the holes in sheet-steel pieces, through which the rivets pass, must be made by the surgeon

at the time the brace is fitted, the rotation outward of the tibia in these cases necessitating this. The splint is then made fast to the leg by a roller bandage, as shown in Fig. 2, and extension made up to the point that is most agreeable to the patient.

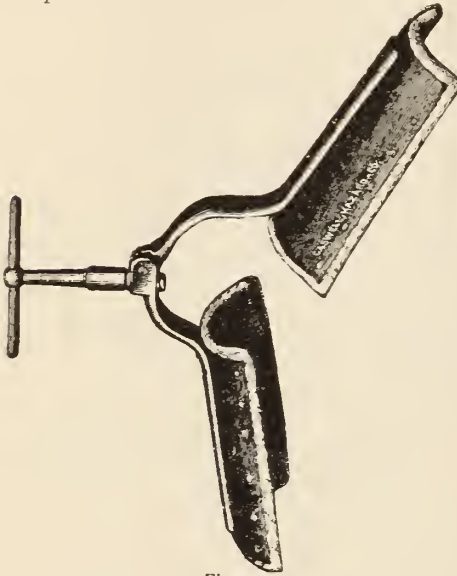


Fig. 1.

It is believed by some that fixation of a joint suffering from chronic disease is all that is necessary to relieve the pain, relax the muscular spasm and effect a



Fig. 2.

cure, with more or less motion, the joint having been coaxed, as it were, into a good position. Others hold that to obtain these results it is necessary to add

traction to fixation. My own belief is that fixation is all that is required in most cases, but that there are a few cases where traction is necessary to relieve pain. To this end I have placed the centre of motion of the splint anterior to the centre of motion of the joint. (See Fig. 3.)

If the centre of motion (hinge) of the splint be placed posterior to the joint, as at A, and extension be made at any given point in the head of the tibia, as E, following the circumference of the circle of which A is the centre, will approach A' and the joint surfaces will be

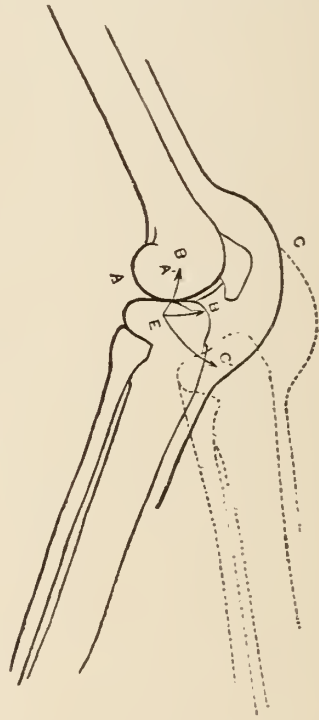


Fig. 3.

crowded together. If the splint be constructed with the centre of motion opposite the centre of motion of the joint (hinge at the side of the knee) at B and extension be made, E will approach B', the head of the tibia passing along the surface of the condyles, and there will be more or less pressure according to the degree of muscular spasm. But if the centre of motion of the splint be placed anterior to the joint at the point C a longer radius will be obtained, and if extension be made E will approach C', and the head of the tibia tend to be separated

from the condyles according to the degree of extension exerted.

This splint should be used only where there is deformity due to reflex muscular spasm; and while the joint is very sensitive, the patient should be kept quiet in bed; later on he may be allowed up, but must use a crutch. I have not yet seen any "short splint" that will protect a joint suffering from chronic joint disease from injurious concussion in walking. The patient weighing anywhere from thirty to one hundred and eighty pounds, and in walking the entire weight being thrown for a longer or shorter time on the affected side, the superficial tissues must be exceedingly tough if they bear a constant traction equal to this weight, whether made by a roller bandage or by strips of adhesive plaster. When the deformity has been overcome, I discard the short splint and use some form of apparatus that produces fixation, and at the same time acts as a perineal crutch. Fixation of the joint should be insisted upon as long as there is any reflex spasm. Ankylosis should not be feared, for it very rarely occurs—never, indeed, unless there has been excessive destruction of the bone. If it does occur, nothing that the surgeon could have done would have prevented it, for passive motion, by prolonging the inflammation, would tend to cause rather than hinder it.—*Dr. J. F. Ridlon, in Medical Record.*

Bonamy on Eucalyptus in Gangrene of the Lungs.

Dr. Bonamy relates the case of a man, about fifty years of age, who was admitted to hospital suffering from cough, dyspnoea and fever. A few days after admission the foetid odor of his breath became so extreme that it was necessary to separate him from the other patients. There was dullness in the axillary line on the left side over the middle portion of the lung. At this point there was tubular respiration, and crepitant râles were audible at the end of inspiration. The sputa consisted of a black matter, detached portions of which were swimming in an abundant serous fluid. The cough was incessant, and the odor intolerable. A diagnosis was made of gangrene of the

lung of superficial extent. The patient was first put upon a mixture containing carbolic acid, but no improvement following, this was replaced by tincture of eucalyptus. In two days after the last prescription the odor of the breath was much less offensive, and in less than two weeks the patient was cured.—*Le Courrier Médical.*

Cornil on Lymphorrhœa from the Nose in Leucocythæmia.

Dr. Cornil relates the case of a patient suffering from leucocythæmia who had a discharge from the nose of a thick, transparent, glairy fluid. It flowed slowly but constantly, and was neither thin like the discharge of a commencing coryza nor opaque like that of a more advanced nasal catarrh, but contained a large quantity of white corpuscles. The patient did not sneeze, nor were there any tickling sensations in the nose. At the autopsy the mucous membrane of the nasal fossæ was seen to be smooth, without ulceration, but thickened in places. The thickened parts presented a gray color on section. They were formed by an infiltration of the connective tissue with a mucous transparent fluid, like lymph. It was this leukæmic infiltration of the Schneiderian mucous membrane which was the cause of the nasal lymphorrhœa.—*Revue Médicale, Aug. 11, 1883.*

Allen on the Treatment of Hay Fever and Allied Disorders.

In a very valuable paper on this subject in the *American Journal of the Medical Sciences* for January, 1884, Dr. Harrison Allen claims that the means of effecting the cure of this hitherto considered incurable disease is simply to overcome the tendency to obstruction in the nasal chambers.

The symptoms of hay fever are always associated with some degree of obstruction of one or both nasal chambers. A cause of this obstruction is dilatation of the bloodvessels. There is no doubt that the local phenomena are in most instances the same, and that the multi-form related symptoms, such as injection of the eye, headache, malaise, asthma, etc., are due to reflex vasomotor disturbances. But many patients report

for treatment who exhibit swelling in the nasal mucous membrane, occlusion of the respiratory passages, and mucoid or semi-purulent discharge, without any of the related reflex phenomena. Yet a third and intermediate group exhibit perhaps a tendency to turgescence of the mucous membrane, together with one or more of the more common constitutional symptoms of typical hay-fever. Indeed, there is nothing peculiar to the disease just named save its sharply defined periodicity, particularly in that phase of it where the periods of recurrence happen to coincide with the time of fruitage of certain plants, or the gathering of certain crops. In a small group of cases, where, in addition, other signs and symptoms become prominent which would invalidate the above proposition, Dr. Allen is inclined to attribute them to mental impression—in some of the varied phases of hysterical or neurotic excitement.

Or the case may be stated in different language, as follows: In an imperfectly defined group of cases of nasal catarrh, a sensation of sudden obstruction of one or both nasal chambers is a conspicuous symptom. This sensation is accompanied by a constant change in the chambers themselves, viz., engorgement of the membranes over the turbinated bones, producing pressure against the septum and occlusion of the respiratory passages of the nose. The sensations are recurrent, but vary greatly as to the time of the day or the season of their return. With some patients they are nocturnal, and are associated with the recumbent position; with others they occur after meals only; with some they occur in the summer season; with others yet again, in the winter. The sensations may be confined to either chamber or be present in both. In aggravated cases they are associated with numerous reflex symptoms, among which may be mentioned lachrymation and hyperæsthesia of the conjunctiva, headache and asthma. Patients having a disposition to obstruction during the summer and autumn report themselves as suffering from "hay-fever;" while those having alternating attacks in the right and the left chambers report with "nasal catarrh."

The cases so far studied exhibit one feature in common, viz., that the inferior

turbinated bones lie well above the plane of the floor of the nasal vestibule. In many persons, not the subjects of "hay-fever" and allied disorders, the lower free portion, including, of course, the inferior border of the bone, lies below the plane of the floor of the nasal vestibule; and in ordinary inspection the inferior meatus is out of sight.

It will thus be seen that the mucous membrane, which is known to be the most erectile, is also the most exposed to irritation from extraneous substances, and to changes in the temperature of the surrounding air.

The conclusions to be drawn from the study of the six cases reported by Dr. Allen may be summarized briefly as follows:

(I.) That the treatment of all conditions of obstruction in the nasal chambers, no matter from what cause arising, can be successfully carried out by destroying the causes of obstruction. If the cause be an overgrowth of bone-tissue, it must be filed, sawed or drilled away. If it be caused by a deviated cartilaginous portion of the septum, such portion must be re-set in a new place. If, as is often the case, it is due to periodic turgescence of the mucous membrane or the resulting secondary hypertrophies, such growths must be destroyed, either by the galvano-cautery, by the snare, or by caustic acids.

(II.) That the treatment of hay-fever and allied periodically recurring nasal affections in no way differs from the treatment of other nasal diseases accompanied by obstruction, and that the treatment may be conducted during an attack as well as in the intervals between any two attacks.

Ravogli on Excision of Hard Chancre.

Dr. A. Ravogli read a paper on this subject before the Cincinnati Academy of Medicine, which we find thus summarized in the *Cin. Lan. and Clinic*, Dec. 8, 1883:

1. The excision of the hard chancre is a very easy and innocent operation.

2. Performed at the first appearance of the chancre, when the lymphatic ganglia are not affected, it can destroy the depot of the syphilitic virus.

3. It would be necessary to try this operation when the chancre is easily

removed, not implicating the tissue of glans, and when it does not leave ugly scars.

4. The excision of a chancre, if unsuccessful, has no influence on the consequent development of syphilis.

In three cases I had complete success, in one case failure. The first case was operated on five days after the first appearance of the chancre, the second after six days, the third after nine days. The fourth case was operated twelve days after the appearance of the chancre. In the first three cases the chancre was seated on the internal membrane of the preputium, in the fourth case the chancre extended to the tissue of the glans. I consider as a cause of non-success in the fourth case, the longer time during which the chancre remained, and the site of the chancre on the tissue of the glans, where its excision is more difficult.

I think, gentlemen, that you will not be afraid to try this easy operation, which at an early time in the appearance of chancre can save a man from a disgusting disease, which infects not only himself, but also his family.

Harrison on a Piece of Bone Passed Through the Bladder.

Mr. Reginald Harrison, at a late meeting of the Medical Society of London, described a case in which the lower epiphysis of a rabbit's femur passed from the bowel into the bladder, and thence per urethram. The gentleman, the subject of this condition, at first presented a tumor in the region of the fundus of the bladder, associated with vesical irritation and severe pain at the lower part of the abdomen. The urine contained pus. He was sounded, but nothing was detected in the bladder, and soothing treatment was adopted. A later examination of the urine showed the elements of feces, and air now escaped on micturition. One day he passed the piece of bone referred to, and subsequently the symptoms gradually subsided. For a long time his chief trouble was that, when the bowels were loose, fecal matter would block the urethra; but by the use of small doses of opium, regularly emptying the bladder with a soft catheter, and daily washing out, the fecal fistula gradually closed, and the

patient was now in perfect health. If the above means had not succeeded, Mr. Harrison would have performed cystotomy in order to obtain perfect rest of the bladder. He had reason to believe, from abdominal examination, that the piece of bone was impacted in the transverse colon, which had then contracted adhesions with the bladder and opened into it, thus providing an exit for the foreign body, so unusual an occurrence that he could find only two similar cases on record.—*Lancet*, Nov. 17, 1883.

Ziemssen on Artificial Inflation of the Large Intestine as a Diagnostic and Therapeutic Measure.

The whole large intestine can be fully dilated by injections of solutions of bicarbonate of soda and an acid, thus causing the development of carbonic acid gas. The procedure, as recommended by Professor von Ziemssen, is as follows: A rectal tube, about six inches long, is carried into the anus, and fixed by pressing together the nates, the patient lying on the back. A funnel is then connected with the rectal tube by means of rubber tubing. For complete inflation of the large intestine, 3 v. of bicarbonate of soda, and 3 ivss. of tartaric acid are separately dissolved in water, and portions of either solutions alternately added. This is preferable to introducing the whole of the solutions at once, as the sudden distension of the intestine by the large volume of gas will cause a good deal of pain. Hence it is better to have intervals of several minutes between the additions of the solutions. Lest the gas should be developed in the rectal tube, the soda solution should be washed into the intestine by a little pure water.

Professor von Ziemssen claims that this method is very valuable as a diagnostic means, enabling the operator to judge definitely as to the position, form, and dilatability of the large intestine, the degree of occlusion of the ileo-cæcal valve for gases, the communication of the colon or rectum with neighboring organs, as the stomach, small intestine, or bladder, or with the external surface of the body; also as to narrowing or occlusion of the intestinal canal, and under certain circumstances, also, as to

the nature of an obstruction to the passage of feces. A very important use of this method is to diagnose the position of contractions, stricture, or occlusion of the intestine in cases in which it is desirable to operate, and also as showing the positions of peritoneal adhesions. Several cases are recorded in which a correct diagnosis was arrived at by this method, some being verified by post-mortem examination. As a rule, the small intestine is completely closed to the entrance of substances from the colon by the ileo-cæcal valve; under the influence of deep chloroform narcosis, however, this resistance is lessened, and fluids can be thrown into the small intestine.

As regards the therapeutic application of intestinal inflation, it may be used to cause evacuation of the bowels; carbonic acid gas being a prompt promoter of intestinal peristalsis. When used for this purpose, about one-half the above quantity of the reagents is sufficient. In cases of suspected ileus, or intestinal obstruction, the bowel can be inflated whilst the patient is anæsthetized.

Contra-indications.—Theoretically, artificial inflation is contra-indicated in affections in which there is diminished resisting power of the intestinal walls, but practically this contra-indication exists only in typhoid fever and intestinal tuberculosis.

In other cases of ulceration and carcinomatous disease of the intestines, von Ziemssen has met with no bad results from its use. It is also, theoretically, contra-indicated after diffuse or circumscribed peritonitis, and especially after perimetritis and perityphlitis, on account of the danger of tearing adhesions and thickenings of the serous membrane, but practically this is not to be dreaded. The rupture of adhesions by gas inflations often causes tolerably intense pain, but does not cause inflammation; and on that account repeated inflation is useful in removing the after-effects of perityphlitis and periproctitis.—*Deutsch. Archiv für klin. Med.*, Bd. xxxiii., Hft. iii. and iv.

Da Costa on the Treatment of Dyspnoea by Quebracho.

Professor Da Costa has had some very satisfactory results from the treatment of

dyspnoea by quebracho. In a recent lecture he said that in his experience it had been especially serviceable in two classes of cases: (1) in purely nervous asthma he had found it to be invaluable; (2) in cases which have been rather loosely called cardiac asthma, cases in which a heart lesion has produced failure of cardiac contraction and consequent congestion of the lungs, he had also known it to be very useful. It may serve as a cardiac tonic or may do good solely by its action upon the respiratory centre in the medulla. Whatever may be the explanation, however, it gives wonderful relief in appropriate cases. The way in which he gives it is the fluid extract in doses of twenty minims every hour, gradually increasing the amount, some patients requiring as much as a drachm before relief is obtained. The good effects are observed usually after two or three doses have been taken. The taste is well covered by using equal quantities of the French syrup of red orange and water as the vehicle. In this form it usually agrees with the stomach. As the respiratory symptoms are relieved the remedy may be given at longer intervals.—*Bost. Med. and Surg. Jour.*

Fabre on Hysterical Pseudo-Phthisis.

In young women suffering from chlorosis and hysteria there is often, according to Dr. Fabre, a condition simulating phthisis. There is a cough, with expectoration, and even spitting of blood. Physical examination reveals dulness at the apex (usually on the right side), feeble respiration, and occasional râles. The author regards these symptoms as due to a vaso-motor disturbance exciting a pulmonary congestion. Other organs may also be subject to functional disturbances. Obstinate anorexia, gastric pain, occasionally diarrhoea, but more frequently constipation, are not seldom present. The pulse is weak and frequent, like that of fever, although the temperature may be normal. Sometimes, however, there is elevated temperature, but it is only transitory, and regular evening exacerbations are never observed. The expectoration is not purulent but may be mixed with blood. While in true phthisis there is emaciation, in these cases the patients often in-

crease in weight. Sweating, as a rule, is not met with. The differential diagnosis is often difficult, and the author relates that cases have not infrequently occurred in which a diagnosis of pulmonary consumption was made, but the patient nevertheless recovered. The condition may exist without material improvement for months, or even years. —*Centralblatt für Gynäkologie.*

Bryden on a Case of Double Colles' Fracture.

R. J. Bryden, M.R.C.S., reports a remarkable case of double fracture of the lower end of the radius which was seen at the Gravesend Infirmary, in an out-patient, who presented himself for treatment on September 18th. A Norwegian sailor, aged 18 years, named Ole Aas, was engaged on one of the yards of his ship in furling a sail, when, on pulling at a small rope, which was thought to be fast, it gave way, and, overbalancing himself, he fell a distance of thirty feet, to the deck below, alighting on his chest and stomach, having each wrist doubled beneath him. The first mate, who saw the accident, stated that the lad fell "as flat as a pancake," to use his own ex-

pression; and he supposed that, the unlucky fellow attempting to lighten his fall by putting out his arms, the whole weight of the body must have been borne by the wrists. He was immediately taken up and brought to the infirmary, where he was found to be suffering from a Colles fracture of each wrist. There was no mistaking the injury, as, on each side, the deformity was well marked, and, at the same time, perfectly symmetrical. Each radius seemed to be broken about one inch from the lower end; at first, there was thought to be some impaction of the fragments; but, on strongly extending each hand on the forearm, the symmetry of the parts became more or less apparent. Dr. Firth, the surgeon for the week, saw the patient, and, thinking the case rather rare and curious, suggested that a photograph should be taken, which was accordingly done. The young fellow did not care much about this ordeal, as he could not keep his arms very quiet, on account of the great pain he was suffering. The fractures were treated with straight anterior and posterior splints, not reaching much beyond the wrists, each hand being drawn to the ulnar side; he was then sent to the Seamen's Hospital at Greenwich. —*British Medical Journal.*

Society Proceedings.

NEW YORK SURGICAL SOCIETY.

Neuralgia of the Second Branch of the Trigemini.

—Dr. F. Lange presented a patient, about forty years of age, a tailor, who suffered from neuralgia of the second branch of the trigemini, on the right side, which had resisted for a long time the usual external and internal remedies and applications, until finally the patient submitted to an operation, which was performed in March, 1882, after the method of Luecke, modified by Braun and Lossen, consisting in an osteoplastic resection of the zygomatic arch and bone, finding the nerve in the depth of the spheno-maxillary fossa, at its exit from the skull, and, besides, a separation of the nerve at its exit from the infra-orbital foramen, and extracting the anterior piece from the base of the skull at this point. He was also able to destroy the spheno-palatine



pression; and he supposed that, the unlucky fellow attempting to lighten his fall by putting out his arms, the whole

ganglion, and so far the result has been permanent. Anæsthesia followed the operation immediately, and was complete also on the corresponding side of the palate. The patient at present had a certain kind of formication, which he described as like the crawling of worms, but had no real pain. The operation was performed by making a horizontal incision along the upper edge of the zygomatic arch extending to the external angle of the orbit, and then a perpendicular one downward over the base of the zygoma, and with a fine saw separating the zygoma, from its attachment to the superior maxilla, directing the saw so that the blade was more parallel to the sagittal plane, in order to prevent subsequent disfigurement from depression of the separated bone. Then by bone scissors the arch was cut across half an inch in front of the meatus auditorius externus. This triangular flap of skin and bone was pulled downward, and then the spheno-maxillary fossa laid open, the temporal muscle drawn backward, and the nerve found, after some adipose tissue had been pulled aside or removed. In the patient presented, the operation had not offered any peculiar difficulty, but Dr. Lange presumed that it was probably on account of his lack of fat, and could readily conceive that sometimes in stout, fleshy persons the operation might be very tedious. He was able to see the internal maxillary artery, but there had been no disagreeable interruption on account of hæmorrhage. The wound healed entirely by the first intention, and as an accident the rubber drainage tube was healed in. After a time the tube was cut out. The result, so far as disfigurement went, was rather gratifying, and also with respect to the recurrence of the disease. Dr. Lange did not think that any other operation afforded the possibility of excising the nerve to so great an extent and with so little danger and disfigurement as the one described. For some time the patient had slight difficulty in opening his mouth in consequence of inflammatory contraction of the temporal muscle; but at present he had no difficulty which prevented him from taking his food, though the movements of the jaw were not normal yet. The little wound by which the nerve was exposed at its exit

from the infra-orbital canal had hardly left a visible scar.—*N. Y. Med. Jour.*

The Value of Internal Œsophagotomy in the Treatment of Cicatricial Stricture. By HENRY B. SANDS, M.D. My object in the present paper is to consider the value of the operation known as internal Œsophagotomy; and to give the particulars of an aggravated case of stricture lately under my care, in which this procedure was carried out with a gratifying amount of success. My remarks will relate only to that form of stricture denominated simple, fibrous, or cicatricial, inasmuch as the operation in question is one of doubtful utility in cases of stricture due to the development of a malignant growth.

Simple stricture of the Œsophagus is probably always preceded by inflammation or ulceration of one or more of its component layers. Systematic writers describe a number of varieties of inflammation, such as catarrhal, syphilitic, phlegmonous, and traumatic, any one of which may lay the foundation of stricture. From an etiological point of view, however, Œsophageal strictures are distinguished by the fact that a vast majority of them are due to the reactive inflammation which follows contact with some highly corrosive liquid, such as sulphuric, nitric, or hydrochloric acid, or a concentrated solution of caustic potash. A consideration of the effects produced by these substances, when accidentally or intentionally swallowed, is essential to a correct appreciation of the pathology and treatment of the lesions that may ensue. These effects vary greatly in different cases, according to the amount of the liquid taken and its degree of concentration. They may be limited to a part or the whole of the Œsophagus, or may also extend to the stomach. If the poison is undiluted, and the quantity large, death usually occurs soon after the injury, in consequence of sloughing inflammation of the Œsophagus. The slightest lesion observed consists in a destruction of the epithelial lining, which is soon cast off and regenerated. The cases that possess a surgical interest lie between these extremes. The destructive action may be restricted to the Œsophageal mucous

membrane, or may involve the subjacent connective tissue, or even the muscular coat. It may be confined to a very short portion of the tube, or may extend throughout its entire length. Furthermore, it may include a part or the whole of its circumference. Accordingly, when the substance which has been destroyed and cast off, is replaced by adventitious fibrous tissue, one or more strictures will result, varying in situation, character, and extent. Avoiding details which are familiar to all, or which are irrelevant to the present discussion, I would draw attention to certain points of contrast between several recognized varieties of stricture, which have an important relation to the prognosis and treatment of the disease. *Ceteris paribus*, the gravity of a stricture will be greater in proportion to its length; and when we remember that a narrowing of any considerable portion of the length of the œsophagus rarely takes place unless the corrosive action of the poison has been intense; and that the long, tubular strictures which result therefrom are usually dependent upon the production of an abundant quantity of cicatricial tissue, and are correspondingly narrow, indurated, and unyielding, as well as often tortuous, we can understand why, as a rule, such strictures are amenable neither to dilatation nor to internal division, but demand gastrostomy as the only available means of prolonging life.

Provided a stricture is permeable to instruments of moderate size, its length can usually be ascertained by the use of a bulbous bougie. The upper limit is indicated when the bulb meets with resistance before it enters the stricture, and the lower limit as it again encounters resistance on being withdrawn. Œsophageal strictures, as I have already stated, vary greatly in their longitudinal extent; and, classified according to their variations in this respect, they may, like strictures of the urethra, be spoken of as linear, annular, or tubular. Another variety of stricture is that in which the cicatricial tissue is of limited horizontal extent, so that it does not embrace the entire circumference of the œsophagus. It may thus form a more or less rigid, valve-like projection against the opposite wall, causing the orifice of the stricture to have an eccentric position.

Trélat,¹ in 1870, proposed to diagnosticate this peculiar condition by means of a demi-bulbous bougie, whose expanded extremity is flat on one side and convex on the other. By introducing the bulb beyond the stricture, and presenting its convex surface toward different parts of the circumference of the œsophagus while making successive attempts to withdraw it, the situation of the callous deposit may be determined by feeling the greater resistance which it opposes to the withdrawal of the instrument. The practical application of the information thus obtained will presently be apparent.

Perhaps I can adopt no better plan of stating my own views regarding the value of internal œsophagotomy as a surgical expedient than by combining them with the record of a case in which I have recently performed the operation.

Addie B., aged eight years, came under my care on January 10, 1883, having been sent to me by Prof. William H. Doughty, of Augusta, Ga., in the hope that something might be done to relieve her of an œsophageal obstruction which had been caused by the accidental swallowing of a mouthful of a strong solution of caustic potash, on September 27, 1882. No alarming symptoms immediately followed the accident, but deglutition was always afterwards more or less difficult and painful, rendering necessary a fluid diet, which consisted chiefly of milk. Dysphasia began to be severe early in November, and was attended with rapid emaciation, the child's weight having been reduced from forty-four to forty-one pounds in the week ending November 16. Subsequently a slight improvement took place, but toward the end of December the patient's condition grew very alarming, and it was found necessary to resort to rectal alimentation. Early in January, dilatation of the stricture was attempted; no progress was made, however, and fearing that the child's situation might at any time become desperate, Doctor Doughty recommended that she should be brought to New York for the purpose of being benefited, if possible, by surgical treatment. At the time of my visit,

¹ Bulletin de Thérapeutique, Paris, 1870, p. 262.

on January 10, I found her very weak, emaciated, and dejected, and evidently threatened with death from starvation. Deglutition had become almost impossible, and the rectum had become somewhat intolerant of enemata. On exploring the œsophagus, I discovered a tight stricture, situated nearly opposite to the middle of the sternum, at a distance of eight and a half inches from the incisor teeth. The stricture was impassable to instruments, and the daily attempts I made to penetrate it were unsuccessful, until January 16, when I was able to introduce a filiform whalebone bougie, having a diameter of two-thirds of a millimetre. During the ensuing five months, dilatation was practiced almost every day, but made very slow progress, as is shown by the following record :

January 23.—Passed an elastic bougie, No. 6.

February 1.—Passed No. 9.

22d.—Passed No. 11.

28th.—Passed No. 12.

March 15th.—Passed No. 13.

April 11th.—Passed No. 14.

27th.—Passed No. 15.

May 8.—Passed No. 16.

28th.—Passed No. 17.

On February 1, I succeeded in introducing an elastic catheter, having a diameter of three millimetres, which proved large enough to allow the injection of milk into the stomach, whenever the child was unable to swallow. Until this time her condition had been extremely precarious, and the question of performing gastrostomy was more than once debated. But, on the one hand, the patient seemed too feeble to bear the operation ; and, on the other, her father's repugnance to such a procedure was invincible. Later, the dysphagia diminished, so that she was able to swallow an abundance of fluid food, consisting of milk, soup, and raw eggs ; and towards the end of May it was found that she had gained twelve pounds in weight since her arrival in New York. Nevertheless, it had meanwhile become evident that the stricture was of the most obstinate character ; for, whenever a single day passed without an attempt to dilate it, a contraction would take place, rendering necessary the use of smaller instruments, the employment of which sometimes caused considerable

pain. Being convinced that future treatment by dilatation would be useless, and perhaps dangerous, by allowing accidental injury to the œsophagus, I decided to resort to internal œsophagotomy, as the most promising expedient under the circumstances. I was encouraged to anticipate success from the operation in the present case, especially in view of two considerations : *First*, I had ascertained by careful exploration, made with demi-bulbous bougies, that the stricture was due to the pressure of a narrow ring of fibrous tissue, occupying only a quarter of an inch of the length of the canal. *Second*. On introducing beyond the stricture an instrument which I designed for the purpose of examining the deeper parts of the œsophagus, and which is constructed on the same principle as Dr. Weir's urethrometer, I found that when the bulb was expanded to its utmost limit, No. 28 (F.), no other contraction could be detected. Accordingly, it appeared probable that great benefit must result from internal division of the stricture, provided this could be safely accomplished. But the operation is well known to be hazardous ; and perhaps, for this reason, it has been rarely undertaken since it was performed for the first time by its inventor, Maisonneuve, in 1861.¹ Mackenzie,² who published, a few months ago, an interesting article containing the statistics of internal œsophagotomy, was able to cite only eleven cases in which the operation had been performed for cicatricial stricture ; and of these, three, or 27.27 per cent. proved fatal. The operation is condemned by many surgical writers, and is not even mentioned in some of our popular text-books. When we reflect, however, that the natural termination of the disease is death by starvation ; that there are many cases like the one herewith reported, which baffle the most patient attempts at dilatation ; that the operation required to establish an artificial opening in the stomach for the purpose of feeding is one which is likewise dangerous, and which, even when successful, places the patient in a deplorable condi-

¹ Maisonneuve, Clinique Chirurgicale, Paris, 1864, tome ii. p. 409.

² American Journal of Medical Sciences, 1883, vol. i. p. 420.

tion, and cannot be contemplated without some feeling of disgust; and that, finally, internal œsophagotomy is an operation which aims to reëstablish a function so important as that of deglutition, we must acknowledge that it merits the most attentive study, with the view of determining the class of cases to which it is applicable, and of adopting the safest and most efficient method of performing it. Undoubtedly, the cases most favorable for the operation are those in which there is only a single stricture, of slight longitudinal extent. Conversely, little hope of benefit from it can be entertained when the stricture is long, tortuous, and indurated. We notice here a close analogy between strictures of the urethra and those of the œsophagus. In bad cases of urethral stricture, however, which are not curable by internal division, we can often resort with success to external urethrotomy; while external division is a procedure very rarely adapted to œsophageal strictures, on account of the usually inaccessible situation of the affected parts.

The dangers of internal œsophagotomy depend on the important relations of the gullet. In different parts of the course it is in close proximity to the pneumogastric and the recurrent laryngeal nerves, the trachea, the left bronchus, the pericardium, the aorta, the azygos vein, and the pleura. The loose connective tissue behind the œsophagus is prone to suppurate when injured, or when food or other irritating substances come in contact with it. Some of the risks attending the operation may be gathered by a perusal of the recorded cases. In Maisonneuve's hands, two proved fatal from peritonitis, apparently not dependent on the operation, as, at the autopsy, the incisions were found not to have passed beyond the limit of the callous tissue, while the surrounding parts were free from inflammation. Braun¹ conjectures that in both these cases the stomach may have been accidentally perforated by the metal conductor which forms a part of the œsophagotome, although Maisonneuve alleges that no such perforation could be discovered on careful examination.

Trélat's² patient had severe hæmorrhage after the operation; and death, in a case related by Schilz, was probably due to this cause. In Czerny's case, the incision doubtless perforated the œsophagus; for emphysema of the neck was noticed a few hours subsequent to the operation, and, after death, a large abscess was discovered in the posterior mediastinum, communicating with the œsophagus and with the right pleural sac. Likewise, in a fatal case recorded by Mackenzie, pneumonia supervened soon after the operation, and at the autopsy a purulent collection was found in the right pleura. Omitting further allusion to Maisonneuve's cases, in which there is no demonstrable connection between the fatal event and the operation, it is evident that the chief danger of internal œsophagotomy is either that of accidentally cutting the healthy vascular tissue, thereby causing hæmorrhage, or of making the incision so deep as to injure one or more of the important parts with which the gullet is in relation. An ideal operation, therefore, would be one in which the cicatricial tissue alone is divided, and in which the perœsophageal structures are left intact. We are thus left to examine the different methods which have been employed, in order to ascertain to what extent these requirements have been fulfilled.

Maisonneuve's instrument is similar in principle to his well-known admirable urethrotome. It has a conductor, consisting of a slender, flexible bougie, to which is attached a flattened steel guide, four millimetres in breadth, and grooved on opposite sides to receive the blades. The latter are two in number, each one being twelve millimetres in breadth, of triangular shape, and having a cutting edge limited to its anterior third, the remainder being quite blunt. The guide having been introduced through the stricture into the stomach, one of the blades, the edge of which is directed laterally, is passed slowly and gently along the conducting groove until it reaches the stricture, when it is advanced with a sufficient degree of force to overcome the resistance. The second blade is then introduced in the same manner, making an incision through the opposite

¹ Czerny; *Beiträge zur Operativen Chirurgie*, p. 76.

² *Bulletin de Thérapeutique*, 1870, p. 250.

side of the stricture ; finally, the entire instrument is carefully withdrawn.

Studsgaard employed an instrument resembling Maisonneuve's, but having a concealed double-edged blade.

Lannelongue's œsophagotome also resembles Maisonneuve's, but has only a single blade, which is protected by a sheath. The projection of the cutting edge is fifteen millimetres.

Trélat invented an instrument by which he divided the stricture by cutting from below upward. It is provided with two blades, each one being four centimetres in length, concealed within a metal tube four millimetres in diameter and six centimetres in length. By turning a screw in the handle of the instrument, the blades can be projected to any distance not exceeding two centimetres. Owing to the length of the blades, they have a very gentle slope, which facilitates their passage through the tissues that require to be divided.

Dolbeau operated by the retrograde method, using an instrument provided with a conical tip, in which were concealed two lateral cutting blades. The bulb was made just large enough to pass through the stricture, and the blades could not be projected beyond the diameter of the cone.

Czerny and Mackenzie have also performed the retrograde operation with instruments of their own invention, each one being furnished with a single blade.

On comparing these several instruments, it will be found, in the first place, that some are arranged so as to cut from above downward, while with others the incision is made from below upward. Recent writers have usually, and perhaps rightly, condemned all instruments belonging to the former category ; but their objections do not seem to me the strongest that might be offered. Whether the incision is made from above downward, or in the contrary direction, is of itself a matter of little moment. It has been said that when the incision is made by thrusting the knife downward, the œsophageal wall below the stricture is especially liable to be perforated ; but I cannot understand why this should happen without carelessness on the part of the operator, nor am I acquainted with any clinical or pathological evidence in support of the assertion. The great dis-

advantage of the anterograde operation seems to be the necessity of introducing a sharp metallic guide considerably beyond the stricture before the blade can be safely used. This manœuvre was found to be extremely difficult by both Maisonneuve and Lannelongue, and must be attended with no slight risk of causing perforation. In operating by the retrograde method, this danger is diminished by the flexibility of the instrument employed, as well as by the circumstance that its extremity can be made blunt, and need not be introduced far beyond the seat of stricture. On the other hand, in the case of a stricture of very small calibre, Maisonneuve's operation would have the advantage that it could be performed with a guide not exceeding two millimetres in diameter ; while an instrument intended to cut from below upward can hardly be made with a diameter less than four millimetres.

A second difference to be noticed is, that some instruments are provided with only a single blade, while others have two blades so arranged as to cut on opposite sides. There can be no doubt that the safety of the operation is increased when only one blade is employed, which can be directed with precision toward any part of the circumference where division of the cicatricial tissue is indicated.

The last and most important contrast to be observed, is the different depth to which the incision is extended, or may be extended, with different instruments. This is very great, Dolbeau's instrument, for example, being so constructed as to permit of mere scarification ; while in that employed by Trélat, the distance between the cutting edges of the two blades, when fully projected, is two centimetres. In endeavoring to estimate the relative value and safety of shallow and deep incisions in the treatment of stricture of the œsophagus by internal division, we must take into account certain facts revealed by pathological anatomy. It is well known that, in strictures of equal calibre, the thickness of the fibrous material on which the constriction depends varies greatly in different instances. Thus, a stricture which will admit only a filiform bougie may be owing to the presence of a nar-

row ring of cicatricial tissue, not exceeding one or two millimetres in thickness ; while in another stricture of the same calibre, the thickness of the constricting band may exceed a centimetre. It is evident that in the former case a shallow incision would relieve the constriction, and that in the latter a deep incision would be required for the same purpose. It is also plain that, in the former case, a deep incision would be liable to extend beyond the outer circumference of the œsophagus. Indeed, this accident occurred and proved fatal in Czerny's patient, although the incision was only two millimetres in depth. Unfortunately, we have no means of determining in the living subject the exact thickness of the callous deposit, and are consequently left in uncertainty regarding the needful depth of the incision in any given case. A shallow cut may be useless ; a deep one may be fatal. Notwithstanding our want of knowledge as to the condition of the diseased parts, we may, I think, proceed in such a manner as to overcome the constriction without subjecting the patient to any extraordinary risk. As, in spite of every precaution, the edge of the knife may possibly be directed against some part of the œsophagus which has undergone no morbid change, the depth of any single incision ought to be a trifle less than the thickness of its coats, which sometimes does not exceed two millimetres. Assuming that the stricture is annular, we may make a superficial incision at any point of its circumference, and afterward endeavor to effect dilatation by the introduction of sounds. If we have succeeded in dividing the whole, or even the greater part, of the constricting band, rapid improvement will probably follow. Should little or no benefit result from the first incision, a second one may be made at some other point, where perhaps the ring may be thinner and less resistant. In case this fails to cause improvement, still another point may be selected for incision, with perhaps a more fortunate result ; or it may be found expedient to make a number of incisions in the same plane. Much has been said respecting the comparative safety of cutting in different directions ; some operators preferring to cut toward the right side, some toward

the left side, while others regard a posterior incision as the only proper one. The relations of the œsophagus vary so considerably in different parts of its extent, that it is impossible to lay down any rule which would apply to all cases. Perhaps, in a general way, it may be affirmed that an anterior incision is the most hazardous, and a posterior one the least so ; but if we adopt the precaution of avoiding incisions of sufficient depth to penetrate the entire thickness of the œsophageal wall, we may turn the edge of the knife toward any point without running much risk of wounding important parts.

The most difficult problem connected with the operation is that of exactly regulating the depth of any given incision. I believe that this can be done only by distending the stricture at the time when the knife is applied to it. On this principle I have devised a simple œsophagotome.

The shank of the instrument, which is fifteen and a half inches in length, and four millimetres in diameter, is a flexible tube made of narrow spiral steel plate, secured within by two pieces of fine wire in order to prevent separation of the spiral coil. The instrument is provided with a variable number of steel bulbs, each bulb being furnished with a corresponding knife-blade. The bulb is firmly fastened by a screw to the distal end of the shank, and the knife is attached to an inner flexible steel rod, manipulated by a thumbscrew at the proximate end of the instrument. By turning this screw, the knife is drawn out from its concealed position within the bulb, the back of the blade sliding over a firm inclined plane. An index on a dial plate indicates the amount of projection of the blade, the maximum projection being two and a half millimetres. A small sliding ring on the spiral tube is used to indicate the distance of a stricture from the incisor teeth. I selected the metallic spiral tube for the shank of the instrument because it combines flexibility with strength. The bulb being conical, the operator can readily perceive when it comes in contact with the stricture, before he projects the blade. In operating, a bulb must be employed which exactly fits the stricture ; the depth of the incision

will then just equal the distance to which the blade is projected by the action of the screw in the handle.

The subsequent progress of the case may be given in the following brief extracts from my note-book :

June 15.—Stricture contracted to 15 (F.). Introduced œsophagotome with bulb No. 15. Passed bulb-joint beyond the stricture ; projected blade two and a half millimetres, and incised the resisting tissue in the posterior median line. The operation was nearly painless, and only a few drops of blood followed the incision. The wound was allowed to remain undisturbed for twenty-four hours, the patient meanwhile being nourished by rectal enemata. These seemed to cause pain in the abdomen, and were therefore discontinued on the day after the operation, the child being permitted to swallow milk, which she did without pain. On the same day dilatation was resumed, and the stricture was found to admit No. 19.

26th.—Daily introduction of elastic bougies since the last date has failed to accomplish any further dilatation. Incised stricture on right side to a depth of two millimetres, using bulb No. 19.

29th.—Nothing having been gained by the last operation, the same instrument was introduced, and an incision, two and a half millimetres, was made obliquely backward and toward the left side. Considerable resistance was offered to the knife, and much soreness followed the operation, rendering dilatation unusually painful. Although a very few drops of blood escaped when the incision was made, the bougies used during the succeeding week were always found stained with blood on being withdrawn.

July 12th.—Dilatation arrested at 23. Arming the œsophagotome with a bulb of this size, introduced it as before, and made an incision, backward and toward the right side, two millimetres in depth. The knife encountered very little resistance, and the operation was followed by slight hæmorrhage, the blood expectorated being about half an ounce.

23rd.—Dilatation has reached No. 26, and patient is allowed for the first time to take solid food, which she swallows without difficulty. It may be remarked, incidentally, that no subsequent trouble

was experienced in swallowing ordinary food.

August 1.—Dilatation has not gone beyond No. 27. With bulb of this size made an incision in posterior median line ; depth two millimetres.

20th.—Dilatation reached 31 on August 12, but treatment having been suspended for a week, it was ascertained that the stricture had contracted to 27. To-day, using instrument with bulb 27, incised in posterior median line to a depth of two millimetres. I had now determined to make all the incisions that might be required as far as possible, in the same plane, with the object of gradually and safely effecting a complete division of the stricture tissue, or of rendering it so thin that it would offer no obstacle to dilatation.

October 7.—Limit of dilatation, 34. Since last date, treatment was once suspended for eighteen days, when contraction took place from 34 to 26. Made an incision in posterior median line with bulb 34, projecting the blade two millimetres.

31st.—Dilatation reached 39, beyond which point it was not thought best to carry it.

November 19.—Patient started for home, being in excellent health, and weighing sixty-two and a half pounds, a gain of twenty-one and a half pounds since treatment was commenced, nine months ago.

In a letter dated January 4, 1884, Dr. Doughty writes that "there is no evidence of a tendency to recontraction, and the function of the œsophagus is as perfect as it was before the injury was inflicted." Bougies are still employed, however, in the hope of obtaining a radical cure. I have neglected to state that, before the child left New York, there were signs of catarrhal inflammation in the neighborhood of the stricture, the bougies when withdrawn being stained with a little pus. This symptom has since disappeared.

I am not willing to assert that, in the case I have narrated, a permanent cure has been effected ; but I think it may be affirmed that the treatment pursued has been successful in preserving the child's life, and in restoring her to comparative health and comfort. Should dilatation

fail to prevent recontraction, I would not hesitate to resort again to internal œsophagotomy.

The limit of this paper forbids any attempt to consider fully the general subject of treatment of cicatricial narrowing of the œsophagus; yet a brief enumeration of the several methods at our disposal may be profitable, by helping us to estimate the relative value of the operation now under discussion.

1. Gradual dilatation is usually, and in my opinion, justly regarded as the safest and best mode of treatment, wherever it is practicable. It is much to be regretted that this method is not always resorted to as a preventive measure, or in the incipient stage of the disease, before cicatrization has taken place. It is a fact, however, that the surgeon's aid is rarely sought until a stricture has become narrow, and deglutition difficult. I have little doubt that, in many cases, the formation of a stricture might be obviated by the frequent introduction of a full-sized bougie while the healing process is going on; and I believe it should be the rule to commence such treatment within a week or ten days after the injury has been received.

If a stricture is impermeable to instruments, dilatation is of course impossible; but, even when bougies can be readily inserted, dilatation is not always successful, as some have maintained, in restoring the distensibility of the contracted parts. This fact is well shown in the case I have described, in which this treatment was faithfully pursued during the long period of five months. Nor is the introduction of dilating instruments always safe, especially when the stricture is narrow. I am able to recall two cases occurring in my own practice, in which an abscess was caused by what I thought at the time to be a cautious use of an elastic bougie. One of these patients recovered; the other died, the fatal event being partially attributable to an accidental perforation of the œsophagus which led to deep-seated suppuration. A similar accident occurred in the hands of Maisonneuve, who perforated the œsophageal wall with a hollow sound; and, believing that the instrument had entered the stomach, he injected a quantity of beef-tea into the poster-

ior mediastinum, causing the patient's death on the following day.

Finally, treatment by dilatation often requires to be continued indefinitely, in order to prevent recontraction; and as in the case of urethral stricture, persons suffering from stricture of the œsophagus are notoriously prone to neglect themselves, avoiding dilatation until it becomes difficult or impossible.

2. I have already stated at some length what I believe to be the indications for performing internal œsophagotomy. The operation has been too warmly advocated by some who have succeeded with it, and too often depreciated by others who lack the experience needed to give weight to their opinions. The number of cases in which the operation has been performed is so small that its value cannot be determined by statistics; but the recovery of nine out of twelve patients in whom this procedure has been carried out with beneficial results, suffices to shield it from condemnation, and to claim for it serious consideration. The case I have recorded is an example of the class in which the operation may be regarded as proper. When the stricture is narrow yet permeable; is of slight longitudinal extent, not exceeding, perhaps, a centimetre, and cannot be dilated to a size sufficient to permit easy deglutition, I believe the operation of internal œsophagotomy to be the most hopeful expedient at present within our reach. I admit that it cannot be performed without some risk, which, indeed, it may be impossible to estimate; but this is warranted by the hopeless character of the disease, and by the results of the alternative operation of gastrotomy. Perhaps the dangers attending it may be diminished by proceeding in the cautious manner I have described, so as to avoid injuring any of the important parts which lie outside of the œsophagus. The amount of benefit to be derived from the operation will depend on the form and extent of the existing lesion. If the stricture is occasioned by a narrow ring of fibrous tissue, or by a valve-like membrane, a radical cure will probably ensue when this has been divided.¹ In most cases, however, the operation will prove only an aid to

¹ Vide Case by Roe, New York Med. Record, vol. xxii. p. 538.

dilatation, rendering this practicable, and perhaps occasionally successful in accomplishing a radical cure. In proportion to the length and induration of the stricture, the utility of internal œsophagotomy will diminish, and in many cases it would be obviously unwise to attempt it.

3. Boeckel¹ has recently reported two cases of impermeable stricture which he claims to have cured by electrolysis. An œsophageal tube, armed at its distal extremity with a small ball of copper, was introduced down to the stricture and connected by means of a wire with the negative pole of a galvanic battery; the plate connected with the positive pole being placed over the eighth rib, a little to the left of the spinal column. In one case, after three applications of from two to five minutes' duration, a bougie, No. 13, was passed through the stricture, which, after the tenth application, readily yielded to dilatation. In the other case, a bougie No. 6 entered the stricture after a single application, large bougies passing at every subsequent sitting. I am unable to determine the value of this novel method of treatment, but am inclined to consider as dangerous any such attempt to penetrate a stricture which will not admit a guide.

4. Strictures situated in the region of the neck, which are either impassable or cannot be dilated, have been sometimes treated by external œsophagotomy, the operation having usually been undertaken with the view of establishing a fistula through which the patient may be fed by means of a stomach-tube introduced through the fistula, and into the stomach. Mackenzie² has collected five cases, in four of which the operation was followed by death at periods ranging from twenty-two hours to eight days. The fifth patient (Bryk's)³ is reported as having been alive at the end of seven weeks. A later account of this patient, however, is given by Von Mosengeil,⁴ who states that the case terminated fatally, from pyæmia, six months after the operation. In this case the œsophagus was opened above the stricture, which was three and a half centimetres in length, and was situated just below

the level of the upper border of the sternum. It was treated by dilatation, and could be passed only by instruments introduced through the fistula; these caused severe pain, frequent hæmorrhage, and finally a deep-seated abscess. In another case (Horsey's)⁵ the œsophagus was likewise opened above the stricture, which was found to be impassable. No encouragement, therefore, is offered to repeat this operation with the object of establishing a permanent fistula, as there is no certainty that an opening can be made below the seat of obstruction. If the patient is doomed always to be fed through an artificial opening, gastrostomy is the operation which should be selected, as it secures a ready access to the alimentary canal below the stricture, and places the fistula in a situation where it can be easily hidden from view.

But evidence can be brought to show that external œsophagotomy may be of great service by enabling us to deal successfully with strictures that are impermeable to instruments introduced through the mouth. Within the past year Gussenbauer⁶ has published an account of two cases of deep-seated stricture, in which he achieved success by a method he calls combined œsophagotomy. The first case was that of a woman, twenty-six years old, who suffered from a tight stricture caused by swallowing sulphuric acid. The stricture extended from the cricoid cartilage to the bifurcation of the trachea, and at the time of the operation was impassable to all instruments introduced through the mouth. The œsophagus was laid open by an external incision; and, when the margins of the wound were held apart, the operator passed a probe downward a distance of eight centimetres, when it was arrested at the point of greatest constriction, opposite the tracheal bifurcation. He finally succeeded in passing through the stricture a probe one millimetre in diameter, and then a very fine grooved director, upon which, with a narrow-bladed herniotome, he incised the cicatricial tissue in two directions, namely, forward toward the right, and

¹ Gazette Médicale de Strasburg, 1883, No. 2.

² Am. Journ. Med. Sc., April, 1883, p. 420.

³ Centrablatt für Chir., 1878, p. 59.

⁴ Wien medicin. Wochenschrift, 1877, Nos.

⁵ Am. Journ. Med. Sc., January, 1876, p. 114.

⁶ Zeitschrift für Heilkunde, Bd. iv., 1883, p. 33.

forward toward the left side. An elastic catheter, eight millimetres in diameter, was now introduced through the wound and into the stomach, and was retained until the fifth day, for the purpose of increasing the dilatation of the stricture, and of injecting fluid food. It was then removed, and, until the fistula closed—three weeks after the operation—the patient was fed by means of a stomach-tube introduced through the mouth. A week later, when she left the hospital, she could swallow solids without difficulty, and could herself readily pass a bougie twelve millimetres in diameter. Neglecting to follow the advice she had received, to continue treatment by dilatation, she returned to the hospital three months subsequently in the same condition as that first described; so that the operation had to be repeated. The wound in the neck healed at the end of three months; and when the patient was last seen—fourteen months after the operation—the stricture admitted a bougie twelve millimetres in diameter. During this interval, however, she had suffered considerably in consequence of failure to practice frequent dilatation; and it seemed probable that this treatment would be required indefinitely, in order to guard against a recontraction.

The second case was that of a child, two and a half years old, who had become greatly reduced in consequence of a stricture due to the action of carbolic acid, which had been swallowed two weeks after birth. Before the operation, a bougie, three millimetres in diameter, was arrested at a point one centimetre below the cricoid cartilage. One, two millimetres in diameter, descended to the level of the manubrium sterni, while no instrument could be made to enter the narrow constriction which was near the cardiac orifice. By an operation like the one already described, the stricture was incised; the incision in the cardiac stricture, which lay nine centimetres below the opening in the neck, being two millimetres in depth, and six millimetres in length. The external wound closed in thirty-five days; dilatation was practised; and when the child was discharged from the hospital, a week afterward, she was able to swallow solid food, and a bougie having a diameter of ten millimetres could be passed into the

stomach. After the lapse of a year, when the case was reported, the patient still remained well, dilatation being continued by passing bougies once a week.

A third case, in which a similar operation was successfully performed, has just been recorded by Bergmann.¹ In this instance the stricture, which was caused by the action of oxalic acid, was situated in the neck at the level of the third tracheal ring. The patient was an adult; and, although before the operation the stricture appeared to be impermeable, it was successfully penetrated after the parts were exposed to view, and the division of a valvular cicatricial fold with a tenotomy knife enabled the operator to pass a full-sized œsophageal bougie into the stomach. The opening in the neck healed at the end of five weeks, and the patient, when exhibited three months after the operation, at a meeting of the Berlin Medical Society held last October, was able to pass easily a full-sized bougie.

5. Gastrostomy, when performed merely with the intention of establishing permanently an artificial opening in the stomach, is at present regarded with considerable favor; but it can never be anything more than a last resort in cases otherwise hopeless. Alsberg's² statistics, which are the most complete I have been able to find, show that gastrostomy has been performed in nineteen cases of cicatricial stricture. Ten of these patients died within the first few days, mainly from peritonitis; four survived, respectively, seven, eight, fifteen, and eighteen months; while five were supposed to be living at the time of the report. Probably these are the cases alluded to by Lefort,³ who has recently said that five persons were known to be alive at the following periods after operation, namely, four and a half months, eight months, twenty months, two years and three years. These results justify a resort to the operation in certain cases; and it is reasonable to hope that, with increasing experience, the percentage of mortality attending it may be considerably reduced.

6. Finally, within the past year, Berg-

1. Deutsche med. Wochenschrift, October 24, 1883.

2. Langenbeck's Arch., vol. 28, p. 75.

3. Gazette des Hôpitaux, xi., 1883, p. 714.

mann¹, has achieved a brilliant success in the treatment of a deep-seated stricture by a method which is both ingenious and original. Already Schede had proposed, and Trendelenburg had attempted, but in vain, the dilatation of an œsophageal stricture by means of instruments introduced through a gastric fistula previously established. Bergmann's patient was a man, forty years of age, who had an impassable stricture forty centimetres from the incisor teeth, due to the action of caustic potash. Gastrostomy was performed on January 29, 1883, and recovery took place without accident; but it was found impossible to prevent a constant escape of the contents of the stomach, and the patient's condition seems to have been very miserable. It was therefore determined to attempt the removal of the stricture. After several trials, the œsophagus was successfully explored by introducing a sound through the mouth while the forefinger was pushed upward through the cardiac orifice; a membranous septum was then discovered, separating the sound from the finger. This was too thick and firm to allow safe and easy perforation by the sound; while the close proximity of the heart and the descending aorta forbade an attempt to divide it with a knife. The obstructing membrane was at last safely perforated by the compressing action of a metal clamp, the blades of which were passed through the cardiac orifice to the seat of stricture, and made to grasp the end of the sound, this being pressed against the septum so as to bring it between the jaws of the clamp. Perforation having been accomplished, the opening was dilated, at first with pieces of compressed sponge, and afterwards with sounds, until it admitted a bougie one inch in diameter. On May 21, the artificial opening in the stomach was closed by a plastic operation, the function of deglutition having being completely restored. The patient, when exhibited on October 10, was in excellent health, and was able to introduce a full-sized sound into the stomach. Meanwhile, treatment by dilatation was being continued.

1. Deutsche med. Wochenschrift, October 24, 1883.

On reviewing the whole subject, we may conclude that certain forms of œsophageal stricture, which have heretofore proved unmanageable, are no longer beyond the reach of surgical art; and that, in some of these, internal œsophagotomy is capable, not only of saving life, but also of reëstablishing the function of deglutition, so essential to its enjoyment.—*Med. News.*

Correspondence.

Congenital Transposition of the Viscera.

COLLEGE OF PHYSICIANS AND }
SURGEONS, CHICAGO. }

EDITOR OF THE ÆSCULAPIAN:

DEAR SIR: I send you a brief sketch of an autopsy held in the Cook County Hospital, November 19th. The subject, a man 38 years of age, was supposed to have died of pneumonia. On opening the abdomen and thorax, some of the small intestine was found in the thorax; upon further investigation nearly all of the small intestine was found in the left pleural cavity; the stomach was immediately in front of the scapula and under the clavicle, and posterior to the heart; the ilio-cæcal valve was found just below the diaphragm, on the right side of the spinal column, the ascending colon, transverse, and part of the descending colon above the diaphragm, the rectum in its normal position; there was a small opening in the posterior part of the diaphragm, the whole having the appearance of the viscera having slipped through this opening into the upper part of the left pleural cavity; the left lung was in front of the stomach and intestines; it was abnormally small and apparently had been almost worthless for breathing purposes; the heart was pushed slightly to the right of normal position; the right lung was very large, the lower and middle lobes were solidified, there were old adhesions of both lungs; the liver was abnormally large and lay below the diaphragm, its convex surface anterior, its concave surface posterior. It was evidently a case of congenital malformation.

The history of the case was imperfect,

and the results of auscultation and percussion were not clearly shown.

Are there many similar cases on record?

W. J. WELSH.

Simple and Improvised Pessaries.

STILLWATER, Minn.

EDITOR OF THE ÆCULAPIAN:

DEAR SIR: I will be pardoned for presuming to speak on a subject that the profession has been dosed *ad nauseam* with—viz., pessaries. I believe that it is an incontrovertible fact that some form of pessary is useful, if not absolutely indispensable, in the treatment of some of the many forms of uterine disease that fall to the lot of the gynæcologist and general practitioner. I believe that it is an undisputed fact, but too well known to most of us, that of the various kinds of pessaries (and they seem to be without number) that are in the shops, it will occasionally be found that none are suitable for some case that presents itself. Now, what I wish to say right here is, that the country doctor (and, for aught I know, the city one, too,) can obviate most of this difficulty if he will only get a little roll of soft wire (about No. 12) and some rubber tubing, and if he have genius to treat such a case, he will have ingenuity enough to make what he wants, the size and shape also, by bending the wire to whatever form the case demands. It is not necessary to say that I believe it the best, for what we make ourselves we generally believe so. But it is a shame that many of the best physicians live in tribute to the instrument-maker, whose only desire is to make money. I shall not attempt to give any instructions how to make any of the innumerable kinds that may be formed with the wire and tubing, for I hold that the man who is competent to treat those cases intelligently is also competent to judge what shape of instrument best subserves his purpose. Yours truly, M. P. FINNEGAN.

Miscellany.

Dr. E. Darwin Hudson, Jr., has been appointed Visiting Physician to Bellevue Hospital in place of Dr. Henry F. Walker, resigned.

Mr. Robert Druitt.—A stained glass window to the memory of the late Dr. Robert Druitt, author of the *Surgeon's Vade Mecum*, is about to be placed by Mrs. Druitt in Wimborne Minster.

N. Y. College of Midwifery.—Drs. B. F. Dawson and Paul F. Mundé have resigned from the Faculty of this institution, because of a questionable advertising pamphlet issued by the trustees.

The N. Y. Anthropological Society was organized December 28th, with the Rev. Dr. E. P. Thwing as president, Dr. R. Ormiston vice-president, and Dr. A. D. Rockwell, secretary.

Army Medical Museum.—Dr. John S. Billings has been placed in charge of the Army Medical Museum. This position will not interfere with his duties in connection with the Library of the Surgeon-General's office.

Bequest to Harvard University.—The will of the late Dr. Calvin Ellis contains a conditional bequest of \$50,000 to Harvard College for the establishment of scholarships. If certain legatees mentioned in the will die without issue, the bequest is to take effect.

The Proposed Sims Monument.—A committee has been formed, representing the profession in various parts of the country, to obtain funds for the erection of a monument to the late Dr. Sims in New York. Dr. Fordyce Barker is the chairman, and Dr. George F. Shrady is secretary.

The Warren Prize Essay on Cancer.—Dr. J. Collins Warren announces that six essays were received on the subject of the "Probability of the Discovery of a Cure of Malignant Disease, etc.," and for which a prize of \$1,000 was offered. None of these essays was deemed worthy of the prize.

The Adherents of the Old Code have organized a new county medical society, under the name of the "New York County Medical Association." The first regular meeting was held at the College of Physicians and Surgeons, on the evening of January 14th, at which Dr. Austin Flint read a paper on the Facillus Tuberculosis.

Phila. Co. Med. Soc.—Officers for 1884: President—Dr. Wm. M. Welch. Vice-Presidents—Drs. Wm. S. Forbes and S. R. Knight. Recording and Reporting Secretary—Dr. Henry Leffmann. Corresponding Secretary—Dr. M. S. French. Treasurer—Dr. L. K. Baldwin. Censor—Dr. H. St. Clair Ash. Two female physicians were applicants for membership, but were defeated, receiving only one-third of the total vote cast.

An International Conference.—

In his annual report, Surgeon-General Wales recommends that the medical departments of the great naval powers be invited to a general conference, with a view to the adoption of a uniform nomenclature, classification, and tabulation of diseases, and of a system of interchange of periodical reports of the movement of disease, from which international reports of sanitary conditions all over the world may be published at stated intervals.

Royal Doctors.—The prince physician, Duke Charles Theodore of Bavaria, M. D., has been promoted to a lieutenant-generalcy by the king, but will not take any active part in military matters. A second scientific scion of the Wittelsbach family, Prince Louis Ferdinand, recently married to a sister of the King of Spain, has in press a monograph of comparative anatomy on the human and animal tongue, with upward of a hundred illustrations. He made the investigation for his work partly in the anatomical institute of Professor Rüdinger, partly in his own laboratory at Nymphenburg Castle.—*Medical Record*.

Perspiration in Albuminuria.—

Dr. Janssen finds that nephritic patients constantly lose large quantities of watery vapor from the skin, but no regularity can be observed in the quantity. (Edematous parts of the body lose more water than non-œdematous parts. Less water is lost by perspiration in acute nephritis, and possibly, also, in nephritis with contracted kidney. The proportion differs in different individuals suffering from nephritis with enlarged kidneys: they sometimes lose more, and sometimes less, than healthy patients. No regularity could be found in the excretion of carbonic acid by the skin in nephritic patients.

Surprising the Urethra.—"In urethral stricture I have," says M. Diday, "in order to avoid confounding it with a spasm, and to overcome this, if it exists, an infallible method. When the end of the sound is in contact with the coarctated portion of the canal, I suddenly put the following question to the patient: 'How long is it since you have been with a woman?' If it is a simple spasm the sound immediately enters."—*Medical Chronicle*.

New York Academy of Medicine.

—The recent election resulted as follows:—Vice-President—Dr. Robert F. Weir. Member of the Board of Trustees—Dr. C. R. Agnew. Treasurer of the Board of Trustees—Dr. F. A. Castle. Member of the Committee on Admission—Dr. Daniel Lewis. Member of the Committee on Ethics—Dr. C. D. Varley. Member of the Committee on Education—Dr. W. G. Wylie. Member of the Committee on Library—Dr. A. Jacobi.

The Medical Society of the State of Pennsylvania.—

The annual meeting of this Society will be held at Philadelphia on May 14th, 15th and 16th, 1884, in the Assembly Room of the Union League, Broad and Walnut Streets. The President's Reception and the Entertainment by the Philadelphia County Medical Society will be held on the evening of May 14th, at the Pennsylvania Academy of the Fine Arts, Broad and Arch Streets. The By-Laws require the programme of the meeting to be printed, and distributed at least one month before the date of the meeting, and no voluntary paper is allowed to occupy more than twenty minutes in its reading. Notice is hereby given that all those who wish to present papers should send the full title and a short abstract of the same to the Committee on Arrangements on or before March 1st, 1884, in order that a varied and attractive programme may be prepared. No paper will be selected for a position upon the programme of the meeting unless an abstract has previously been seen by the Committee.

By order of the Committee.

JOHN B. ROBERTS, Chairman,
1118 Arch St., Philadelphia.

Eczema of the Scalp in Infants.

—Dr. Lassar employs the following formula: Salicylic acid one part, tincture of benzoïn two parts, and vaseline fifty parts. A certain quantity of this is smeared over the scalp two or three times a day, after the infant's head has been washed with soap and water. To soften the scabs and facilitate the cleansing of the scalp, Dr. Lassar recommends the employment of oil containing two per cent. of salicylic acid.—*Gaz. Médicale, Aug.* 1883.

College of Physicians of Phila.—

The following Officers were recently elected:—President—Dr. Samuel Lewis. Vice-President—Dr. J. M. Da Costa. Secretary—Dr. Richard A. Cleeman. Treasurer—Dr. Charles Stewart Wursts. Honorary Librarian—Dr. J. H. Hutchinson. Recorder—Dr. J. Ewing Mears. Censors—Drs. Lewis Rodman, Edward Hartshorne, Wm. Goodell, and Alfred Stillé. Councillors.—(To serve until January, 1887.)—Drs. S. W. Gross and James C. Wilson.

Obstetrical Society of Phila.—

The following are the Officers for 1884:—President—Richard A. Cleeman, M.D. Vice Presidents—B. F. Baer, M.D., W. T. Taylor, M.D. Secretary—W. H. H. Githens, M.D. Librarian and Curator—T. Hewson Bradford, M.D. Councillors—R. P. Harris, M.D., Lewis D. Harlow, M.D., Wm. Goodell, M.D., T. M. Drysdale, M.D. Publication Committee—John H. Packard, M.D., James V. Ingham, M.D., Elliott Richardson, M.D., B. F. Baer, M.D.

Resection of the Stomach.—At

the Medical Congress of Olten, Professors Kocher of Berne and Socin of Bâle presented a report of cases of cancer of the pylorus treated by resection of the stomach. Thirty cases of resection of the stomach have been reported in Germany alone; of these, ten have ended in recovery. In twenty-six of the cases, there was cancer, and in four ulcer of the stomach; three of the latter made a rapid recovery; seven only of the cancer cases recovered. In two of the latest cases occurring in women forty years of age, the digestive functions were completely re-established.

To Abort a Sty.—Dr. Louis Fitzpatrick writes to the *Lancet* that he has never seen a single instance in which the sty continued to develop after the following treatment had been resorted to: The lids should be held apart by the thumb and index finger of the left hand, or a lid-retractor, if such be at hand, while the tincture of iodine is painted over the inflamed papilla with a fine camel's-hair pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in the twenty-four hours are sufficient.—*Medical Record.*

The Society of Medical Jurisprudence and State Medicine.—

The following-named gentlemen have been elected officers for the ensuing year: President, Mr. William Barnes; Vice-President, Dr. E. J. Birmingham; Secretary, Dr. W. E. Brill; Corresponding Secretary, Dr. J. F. Chauveau; Treasurer, Dr. E. C. Hardwood; Financial Secretary, Mr. M. F. Eller; Trustees, Dr. E. C. Spitzka, Dr. C. A. Leale, Dr. J. J. Henna, Dr. J. H. Fruitnight, Dr. A. M. Jacobus, Mr. S. B. Livingston, Mr. H. W. Sackett, Mr. E. H. Benn, and Mr. D. M. Shaw.

The Eclectic Medical College,—

The Attorney-General has begun a suit in the Supreme Court against the Eclectic Medical College of New York for the annulment of its charter and the dissolution of the corporation controlling it, on the ground that the college has been issuing diplomas in blank, and has sold them to incompetent persons who have filled them in with their own names. The County Medical Society, through its counsel, Edward C. Ripley, Esq., has been engaged since last April in tracing the history of certain diplomas issued by this college, and it is stated that the facts show that the plan of granting diplomas is as unscrupulous as that exposed and put a stop to in the American University of Philadelphia.

Anecdote of Velpeau.—Count de Villiers related that the celebrated surgeon, Velpeau, at the time when the physician, Lapommeraye, was about to be decapitated for a peculiarly shocking murder, called upon the condemned man in his cell, and conjured him, in

the name of science, to make some sign after his head had been severed from his body by which he (Velpeau) might recognize whether the faculty of thought still resided in the brain. Lapommeraye, says the writer, consented, and Velpeau stood at the foot of the scaffold ready to take the trunkless head in his hand as soon as it should fall. With the dull and sickening thud, which all those who have been present at executions of this nature will remember, the heavy knife descended, and not more than a second later Velpeau, whose nerves, powerful though they were, almost quailed as he made the horrid experiment, put his lips close to the gory ear and said, in a loud, distinct voice, "Dr. Lapommeraye, by the solemn promise you have made me, turn your eyes upwards and close and open them, if you are still alive!" Awful were the feelings of the surgeon (says Count de Villiers) as he plainly saw the eyes move in their orbits, then close, as though by an effort of the will, and half open again; but at this point a last ghastly shade spread over the disfigured face, and the features were motionless and rigid. Dr. Velpeau departed, and until his death was per-

suaded that life persists in the brain of a decapitated man, if only for a few moments; a belief for which there are, indeed, certain physical grounds.

A Method of Hastening the Anæsthetic Action of the Ether Spray.—The ether spray is employed frequently at the Hôpital St. Louis in Paris for the production of local anæsthesia. A little device, first indicated by Dr. Letamendi, of Barcelona, but not hitherto utilized in practice, is employed by Dr. Vidal to shorten the duration of the process of congelation. It consists in making a slight prick with a needle at the point upon which the spray is directed, at the moment when the skin assumes a purplish hue, and when the ether, commencing to solidify, assumes an oily consistency. The little puncture made at this time excites a reflex constrictive action of the vaso-motor nerves, the blood is driven from the part, and the skin becomes white. Another method of hastening the process consists in placing little wads of lint about the part, thus increasing the surface of evaporation. — *Revue Médicale*, June 30, 1883.

\$2.00 PER YEAR.

20 CENTS PER COPY.

SERIAL

THE

Æsculapian.

A MONTHLY JOURNAL

—OF—

MEDICINE AND SURGERY,

EDITED BY

EDWARD J. BERMINGHAM, A.M., M.D.

VOL. I.

MARCH, 1884.

No. 3.



PUBLISHED BY

BERMINGHAM & COMPANY,

28 UNION SQUARE, NEW YORK,

20 King William Street, Strand, London.

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THE ÆSCULAPIAN.

VOL. I.

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Original Articles.

THE TREATMENT OF PERICARDITIS.

A Lecture delivered at the College of Physicians and Surgeons, New York.

By ALONZO CLARK, M.D., LL.D.

Emeritus Professor of the Principles & Practice of Medicine etc.

As late as 1840 the treatment of pericarditis without a mercurial was generally regarded as hardly less than malpractice, and it was to be carried to the production of redness of the gums and slight salivation. Dr. Latham, whose pleasing style won for his book a world of readers, knew no other way, and urged his views with great earnestness. The idea was that the mercurial "diminished the plasticity of the blood" and prevented the plastic effusion and thus gave the patient a better chance of recovery. Soon after the publication of this pleasing book Dr. Taylor published the results of a different treatment in another hospital. He gave no mercurial whatever, and his results in, it may be, fifty cases where as good and, as I remember, better than those of Dr. Latham. This greatly surprised the advocates of that treatment, and was the beginning of its abandonment, as a plan. Now a physician, who has charge of a case of pericarditis hardly thinks of a mercurial of any kind, and it is not given in one case out of twenty.

The first consideration, as the disease is so often secondary, is the treatment proper for the primary affection. If, for example, it follows articular rheumatism the question will be, what will most quickly and safely eradicate the rheumatic diathesis? This leads to some statements regarding the treatment of articular rheumatism. Until Dr. Fuller's alkaline treatment was announced we were much at sea; hardly two physicians agreed on any plan. One relied on nitre, in large doses, and greatly diluted.

Another thought that lemon-juice, given freely, gave him better results. Another gave quinine. A fourth relied chiefly on diaphoretics, and still another had faith in the external application of boiled boughs used as hot as could be borne. But treated by whatever plan it was but slowly cured, if cured at all. It often lingered for two and three months. But the adoption of Dr. Fuller's plan was attended by a notable shortening in the duration of the disease, which was cured in three to six days in a large proportion of the cases. A few resisted and the disease was not controlled for weeks. The plan had memorable advantages over any previously proposed, and was in detail this, or rather is this:—the administration of an alkaline medicine in full doses so as to make the urine alkaline in the shortest time consistent with the toleration of the stomach. He used sometimes the Rochelle salt, tartrate of potash and soda; sometimes the carbonate or bicarbonate of soda; sometimes the same salts of potash. He had the urine tested at short intervals to ascertain when this saturation had occurred. After such saturation the urine was to be kept alkaline till the symptoms abated, requiring, usually, smaller doses than were needed to produce the alkalinity. This is the pith of the matter.

About ten years ago the salicylic acid was introduced for the cure of rheumatism, and the physicians of Bellevue Hospital, prominently Dr. Jacobi, desired to try it; but how to dissolve it was the question. He proposed the carbonate or bicarbonate of soda as the solvent. The acid was mixed with water first, and then soda was added till the mixture became clear. This was the first salicylate of soda made in this country, so far as I know, and with it the disease was treated with marked success. I published a dozen cases, or so, soon after this preparation came into use, showing the almost marvellous promptness with which this medicine gave relief. I can narrate some others, indeed many, but will not be wearisome.

A man, of about middle age, was brought into one of my wards when I was present. I found his right knee swollen, red, hot, and painful, so that he could not move it. The disease had been upon him two days. He had some fever. Salicylate of soda was prescribed, twenty grains in solution every two hours. No other medicine was given. The next day at the same hour the swelling, redness, and pain were gone; only stiffness remained. The medicine was continued, but diminished to half the quantity. The next day I found him sitting up and he could walk. On the third day he asked for his discharge, and was discharged. I heard no more of him.

A young lady of remarkably handsome figure and face, before I knew her, had had three several attacks of rheumatism from one to two years apart. She had been confined to her bed, or arm-chair, by each invasion, an average of three months, and in each the heart had suffered. She came with her mother to the city for a stay of a few days. Her mother had previously, and again at this visit to the city, consulted me regarding her own ailments. One morning she came to me with a very sad face, and told me that her daughter, since the day before, had been brought to bed with a new attack of rheumatism, and which appeared to be the worst she had ever had. Both knees, both elbows, and one ankle were red, painful, and swollen, and that she was utterly helpless, "and now," she said, "my poor child must suffer another three months of agony," and she wept. I bade her be comforted, told her that the world moves and men make discoveries, that "the thing that hath been, is" not now, always, "the thing that shall be," and that by the use of a new medicine, I hoped to give her daughter pretty prompt relief. It was ten o'clock in the morning. I prescribed the salicylate of soda, fifteen grains every two hours. I could not visit her till nine o'clock at night. I was happy to find her almost wholly relieved of pain, and the mother informed me that the swelling and redness were diminishing. She rested well that night. The next day at one p.m., I found her sitting in a chair at the side of her bed free from all the symptoms of rheumatism except stiffness in

the invaded joints. The third day she could walk. Thus ended her rheumatism, and thus was lifted from her mother's heart a load of sorrow. That was the end. I saw her three years later. Her old heart disease remained, but there had been no more rheumatism.

These are selected cases, and selected for the purpose of showing with what energy and promptness the medicine acts in certain cases; and especially to show that the drug can, in many cases at least, stragulate a rheumatism before the average period arrives for the occurrence of heart complications.

There exists in my mind no doubt that the promptest, best, and safest remedy for articular rheumatism, and consequently the best prevention of its secondary cardiac disease, is the salicylate of soda. Still there are certain facts which should be stated *per contra*. Given in the quantity just reported it does, in some persons, either by its direct action on the stomach, or through the nervous system, produce vomiting; then it is given in smaller doses, or it is suspended for a few hours, and the bicarbonate of soda given instead.

Early in the use of the salicylate of soda, it was noticed that now and then delirium followed its administration, and seemed to be produced by it. This effect seemed to be chiefly observed in persons who had abused themselves by too free a use of intoxicating liquors. This delirium occurred almost exclusively in hospital patients, whose "previous history" it is often impossible to get. The delirium is violent, yet it was commonly thought prudent to send these patients to the wards where the delirious are treated. This mental disorder lasted but a day or two, and has been, in no case, followed by any permanent disease. In these, again, the carbonate or bicarbonate was given instead of the salicylate.

The salicylic acid has been given alone. It will cure articular rheumatism, but less promptly, it appears to me, than the salt. The European reputation of the acid led Dr. Jacobi, almost without knowing it, to make and use salicylate, and, for myself, I must say that after several years use of it, it has, at present, my decided preference.

The obstruction of blood is hardly

ever thought of in the treatment of articular rheumatism, so it is almost never resorted to for the cure of rheumatic pericarditis. The aim is to overcome the rheumatic diathesis and so cure both.

When pericarditis occurs in the œdema after scarlet fever, it is probably produced by uræmia, or the same condition of the system that causes the dropsy, and is almost always attended by a high-colored, or bloody, or smoky and scanty urine. The first object of treatment, then, is to remove the cause of the disease; in other words, to induce a healthy secretion of urine, if that is possible, and remove from the system the poison that is being carried into every part of it, whether that poison be urea, carbonate of ammonia, or whatever else. To accomplish this the most valuable agents are the diuretics and diaphoretics. Among the first, I give preference to an extemporaneous citrate of potash and digitalis. You prescribe half an ounce of the carbonate of potash, dissolved in six ounces of water, and direct that a tablespoonful, mixed with the same quantity of fresh lemon-juice, be given every two hours, to an adult, with the proper reduction for children. On the mixture of these two ingredients there is a feeble effervescence, but enough to make the draught agreeable to the taste. It is not a new prescription. The physicians who were old when I was young gave it greatly more than does the present generation. With this give an adult a dessert-spoonful of the *infusion* of digitalis three times a day. I emphasize the word *infusion*, because it seems to me to act much better, as a diuretic, than the tincture, or extract, or powder, and because many physicians have thanked me for the suggestion. The quantity of the infusion may be larger than a dessert-spoonful. The authorized dose is a tablespoonful, but the smaller portion has in most cases been enough; and then, the only cases in which I have seen that are called the "cumulative effects" of digitalis were in uræmic persons, and I am afraid to give it freely.

Everybody knows the relations that exist between the skin and kidneys, and you will, therefore, be prepared to hear that when those organs are congested a certain treatment of the skin may help to bring relief. What I am about to advise

is more preventive than curative and is, therefore all the more valuable. As soon as the œdema and paleness appear, use the warm water or vapor bath until a perspiration is produced. At first the perspiration may be a little free. In this condition put the patient in bed without losing much time in wiping off the water. Keep up the sweating for half an hour, then let it dry down to a mere moisture, and keep the patient in this moisture for days, even for two or three weeks, by the bed-clothes. In many cases of children it is almost impossible to keep the patient in bed. He does not feel sick and cannot understand why he should not be allowed to run about as usual. In such cases as this I have adopted the plan of getting the first perspiration and keeping the child in bed for a few hours. Meantime a double suit of flannel is prepared—pretty heavy flannel—and when he will not tolerate the bed any longer he is clothed in this suit and allowed to walk about and enjoy his playthings; but with this one important condition, that the temperature of the room or rooms into which he is allowed to go be kept at or above 76° F. This temperature, this clothing, and the exercise he will get will be likely to keep a little sweat on the forehead and body the whole time. This is what you will try to produce and keep up for days together. You may expect from this management a diminution of the congestion of the kidneys, and with that a freer secretion of urine and a gradual diminution in the morbid indications of that fluid, and by this the danger of convulsions and *pericarditis* is naturally reduced. If pericarditis has actually begun, the patient will probably remain in bed willingly, and the perspiration may be induced by the foot-bath in bed, and kept up by repetition. The vessel holding the warm water is placed in bed close to the body, the thighs and knees so bent that the feet will fall perpendicularly into the water, and all covered by the bed-clothes. This is the first step in the treatment, and may be followed by a depurative diuretic. The condition of your patient does not suggest the lancet, but rather tonics, including iron, and if you take any blood at all, it should be limited to that which a few leeches will abstract. There is probably no therapeutical fact more fully demonstrated than the effica-

cy of *blisters* in pleurisy. Are they equally useful in pericarditis? I do not think so. In one case the blister is applied near, physiologically, as well as in actual distance, to the diseased surface. In the other the physiological distance is much greater. The vessels that supply the heart with blood have their origin from the aorta, before it leaves the heart sac, and the dependence of the sac itself on the thoracic arteries is not intimate. A blister applied over the heart may act as a derivative on other branches of the thoracic vessels, but probably not at all on the coronary arteries of the heart. However this may be, blisters are not a favorite application in this form of pericarditis, perhaps because it occurs so generally in children, and the student is admonished to use them with modification and great care in these young folks, on account of the exaggerated and even dangerous effects they may produce.

Opium deserves consideration in this form of the disease. It may not, by any means, be given in heroic doses, as it is given in the treatment of peritonitis, for a which I will soon explain to you; but reason given in ordinary doses, or only slightly more, it soothes irritation, and the heart is always irritable during the early stage of pericarditis, and gives the patient needed rest, and in this way gives earlier development to that recuperation and recovery which in many cases may be regarded as the spontaneous tendency of the disease itself. The objection to large doses of any opiate in the course of uræmia in any of its manifestations may be enforced by the following sketches. The late Dr. Conant Foster, living near me, sent for me early one morning to see a young man who had slept in his house. He was comatose, but not profoundly. The history in short was this: He sought the doctor's advice the night before on account of a great pain in one of his fingers, which was the seat of a felon. The doctor advised him to take forty drops of laudanum on going to bed. In the course of the night the patient sent a message to the doctor, informing him that the pain was very severe and he could not sleep. The doctor advised him to take another dose of laudanum of forty drops. In the morning he was found in the state already indicated. He could not be aroused to

answer questions, yet he was not motionless in bed; the pupils were contracted, but not extremely; he did not swallow except unconsciously; the breathing was not remarkably deep or infrequent; it was not the characteristic stupor of opium-poisoning, but more like that of uræmia. Dr. Foster did not know of any illness before the felon occurred. There was no œdema. The chance that any laudanum could be found in the stomach was hardly worth entertaining, since the last dose was taken five or six hours before, and the stomach was empty when it was taken. The organ was washed out by the pump, and no odor of laudanum was discovered in the water used. The remaining indication was to procure free perspiration. I have forgotten whether this was done by enveloping the patient in several thicknesses of blankets wrung out of hot water, or by use of the foot-bath in bed; but our efforts were unavailing. He died that day. A post-mortem examination revealed what he and his friends appeared to be wholly ignorant of, a rather advanced stage of Bright's kidney.

During the week in which I saw this patient I was called to see a lady, in consultation, who showed evidences of Bright's disease in œdema and paleness, manifestly. She had the night before taken, at one dose, half a grain of sulphate of morphine, I do not remember for what. She was in a coma similar to that in which the young man was found, not having the close contracted pupils, the deep slow breathing, the motionlessness of the opium poisoning, but again more like that produced by uræmia or the early stage of miasmatic coma. I have seen other similar cases, enough to persuade me that there are conditions, not readily recognized, in uræmia, in which the blood poison and opium may work together, and produce a coma which neither of them alone would have produced, at least, at the time when it occurred. On the other hand, many patients having Bright's disease have taken, under my eye, but not with my approval, half a grain of the sulphate of morphine, night after night, with only soothing and sleep-giving effects. This was the case with my colleague, the late Prof. Gilman. He gave me all the confidence I could ask, except in this one particular. I as-

sented to one quarter of a grain of the sulphate at night, but he would take, night after night, a half grain, to which dose I gave my sanction, only after the proof that for him at that time it was not dangerous.

These cases, it is true, are neither of them pericarditis, but all Bright's disease, and if pericarditis occurs with that affection, either acute or chronic, they illustrate a needed caution in its management.

The co-existence of pericarditis and pneumonia, or of pericarditis and pleurisy, is of infrequent occurrence—so infrequent that it does not suggest the thought that one is secondary to the other, as we are apt to say pericarditis is to rheumatism. It seems to be a concurrence, as if the same diathesis had produced them both. There would seem to be then nothing distinctive in the treatment of such a pericarditis. What we would do for one we would do for the other. Then for the treatment of pneumonia. When I entered the profession bleeding from the arm was almost invariable. The patient was bled. Commonly sixteen ounces of blood were taken, or the blood was allowed to flow till the patient sitting on his bed grew pale, and the sweat bedewed his forehead. In twelve hours the same thing was repeated, and after another interval of twelve hours, ten or twelve ounces were taken by cups or leeches. Bleeding, more or less, in pneumonia was so general that its omission was regarded as hardly less than culpable, and the first implement with which the student supplied himself was a lancet. In 1837 I followed *Bouillaud* in Charity Hospital, Paris, and witnessed his *coup sur coup* bleedings in this disease. It consisted in bleeding from the arm to sixteen ounces in the morning, taking twelve ounces by cup at noon, and sixteen ounces by venesection at night. This practice was repeated for two or three days, so that to abstract eighty to one hundred and twenty ounces of blood in the course of three days was common with him. He was not indiscriminate in his application of this treatment, for if the patient was broken down, or was of bad habits previous to the pneumonia, he was not bled at all, but was put on the tartar

emetic treatment, so much extolled by Laennec. It cannot be denied that many of his patients lived through it, possibly were cured by it. But it was not just to contrast the results of these two modes of treatment, after the care he exercised in the selection of his cases. Physicians generally were not converted to *Bouillaud's* plan, though at that time they were all bleeders. They seemed to think that it was "too much of a good thing."

Eighteen years, or thereabouts, after this, good old Dr. North, who had retired from active practice, spent a winter in New York, and on clinical days was always at the hospital. By that time the sanguinary habits of the profession had been materially modified. Venesection was practised with discrimination. I had almost abandoned it in hospital practice, making, however, frequent use of scarification and cups. The good man, after hearing the directions for the treatment, would fall back and, getting the ear of one of the class, would say, "This will not do. We cannot cure these men without bleeding from the arm." At the end of the season I was able to inform him that he had seen in my wards forty-three cases of pneumonia, out of which there were but three deaths. So small a mortality I then considered "a run of luck," in the character of the cases, and have not changed that opinion, for if it was skill in treatment, that skill departed from me after that winter.

The late Dr. A. H. Stephens had convinced himself that the abstinence from venesection by the whole profession, with the exception of here and there "an old-fashioned man," was made necessary by a change in the human constitution, and that in his later years men could not bear the bleedings that he witnessed and practised in earlier life. The practice of the few remaining bleeders; the hæmorrhages of accidents and of parturition, with subsequent recovery, were cited to him; but he would reply, "You do not know about it. I have lived through it all, and know it all well."

Subsequent to this conversation a very striking case occurred, which, had he witnessed it, might have shaken his conviction. A very eminent physician,

when turned of seventy, was attacked by pneumonia. The lung—it was the right—was in the crepitant stage when I first saw him in consultation with late Prof. J. M. Smith. We had a dozen leeches applied in the morning, and met again in the evening. The first thing that struck us on entering the room was the extraordinary paleness. There was little difference between the color of his face and that of the pillow on which his head rested. His expression was languid. It instantly occurred to us that the leech bites had been forgotten by the attendant and that the patient was bleeding to death. I at once examined and found it so. Our first care was, of course, to stop the bleeding. I pressed all the fingers I possessed on as many leech bites. The bleeding was stopped, say, two minutes. Then, turning attention to the amount of blood lost, his clothes, including a flannel undershirt on the back, were saturated. The blood had spread widely on the under sheet. From the ticking of the bed I removed three double handfuls of coagulations. It had saturated two mattresses for a pretty large space, and there was a large pool of blood on the carpet under the bed. It was impossible to ascertain the quantity he had lost by any measurement. But that it was enormous is shown by what follows. We drew the sheet out from under him, and after washing the back in warm water drew under him an india-rubber and a linen sheet, having previously torn the personal clothing up the back and laid it forward. We did not dare to allow him to sit up in bed. We were about to tear the fresh clothing up the back, put his arms into it, and tuck it under the back. At that point he said, "Give the undershirt to me. I am strong enough." One of the attendants gave him the shirt while our attention was diverted. He partly raised himself in bed, and had partly passed one arm into a sleeve when he fell back fainting. When he recovered his consciousness he willingly submitted to our plan. His pulse could scarcely be felt, but when countable was 140 in the minute. For days, indeed for two or three weeks, even when he could sit up, he was the palest man I think I ever saw. This bleeding com-

pletely strangled the pneumonia. The crepitation ceased after a few hours, and there was no hepatization at all. There were no remains of pneumonia the next day and no more pneumonic expectoration, but he did not recover from the bleeding for some weeks. This was, by accident, heroic treatment, and, so far as the inflammation was concerned, was attended by unprecedented success. But I have not dared to follow its suggestions.

Among the most pleasing books in medical literature is "Bartlett on the Certainty of Medicine." In that there is a review of the treatment of pneumonia by bleeding, and the author proves, as far as anything can be proved in therapeutics, that the practice diminishes the severity and the mortality of the disease.

In the hospital I have rarely resorted to venesection for two reasons: first, the patients are most of them persons whose health has been impaired by the unwise use of intoxicating liquors or scanty of improper food. Second, they are likely to come in at a stage of the disease in which active treatment is harmful. On one occasion a young woman of good habits and of previous good health was admitted, on the third day of pneumonia. I asked the house physician if he had ever bled a person. He had not. Would you like to bleed this patient? He would very much. Bare up the arm and I will guide you. But he had no lancet. Other members of the house staff were present, but none of them had a lancet. There were several persons at the clinic—students and young physicians—not one of whom had a lancet. Not one could be found in the hospital except among the surgical instruments. I mention this occurrence to show what kind of patients are benefited by venesection, and how even then, fifteen or twenty years ago, bleeding had gone out of use and almost out of memory.

But in hospital practice I still make constant use of cups with scarifications. My private practice has always been limited to consultations. I have never had a single family. The consequence has been that I have rarely seen pneumonia, or, for that matter, any other disease till the dangerous period had ar-

rived, or for pneumonia till the stage for active treatment had passed. Still my faith in bleeding on the first to the fourth day is as active as ever.

When the period of active treatment is passed, that is, when the consolidation of the lung has extended as far as it will, which, in the majority of cases, is at the end of the fifth day, it is plain that the mischief is done. Bleeding is of no use so far as the consolidated lung is concerned, but even then it may be called for in aid of the other lung, for that other lung is in danger of congestion from the diversion of the circulation to it, caused by obstruction to the flow of blood through the vessels of the inflamed lung, and consequent œdema. A moderate bleeding may help to relieve this congestion and œdema. Aside from this we do not entertain the question of bleeding, in any way, after the end of the fifth day, counting from the initiatory chill. But while the disease is passing from the red hepatization to the gray, which every pneumonia must do if the patient is to get well, there are still active symptoms. A high temperature may require sedative doses of quinine, or aconite, or possibly veratrum. In many cases of pneumonia a condition of the system occurs which suggests the use of alcoholic stimulants. I doubt whether they ever do any good—whether a case that cannot recover without them will ever be saved by giving them. At the same time I do not think they do harm when properly used. What you would do for pneumonia you would do for pneumonia and pericarditis combined. For this pericarditis there is not a separate treatment unless it consist in giving moderate doses of an opiate to quiet the irritability of the heart; and this may be done without fear of any unfavorable effect on the lungs.

When pleurisy and pericarditis concur, blisters and diuretics, which are so effectual in pleurisy, are not so useful, as has been said already, against the pericarditis. In addition to these the abstraction of blood by cups or leeches may hasten the cure of the pericarditis, especially as the opiates, so useful in most forms of that disease, may interfere with the action of the diuretics.

Pyæmic pericarditis has a pecul-

iar history. It appears that a common preliminary is the formation of small pus spots in the muscles of the heart. That those near the surface provoke the pericarditis, and that the exudations are there lymph and serum as in the more common form of the disease. But it sometimes happens that one or more of these spots grow to a considerable size and rupture into the pericardial sac. The inflammation that follows this accident is likely to be attended by purulent exudation. There is little to be said of treatment in this variety of the disease. The primary disease is so apt to be fatal, and the oppression and weakness imposed on the system before the pericarditis manifests itself is much opposed to local depletion, and may forbid it. The soothing influences of opium suggest it, and it may be used, but not in heroic doses. When the effusion is purulent, should the patient survive the pyæmia, as is quite possible, the question of tapping will present itself.

Pericarditis may occur independently. It is rare, but a case showing its possibility will soon be narrated. When it occurs in that manner the moderately free use of cups with scarification, or leeches or both, and of an opiate will give the best results. It is common to apply these to the pericardial region, but as it is not derivation that is now aimed at, but a moderate reduction of the volume of the blood, it would seem to be of little importance from what part of the body the blood is taken. Cups or leeches applied over the heart do not prevent the physical examinations which should be duly made, as blisters do. But blisters I am not disposed to urge. I have here a specimen which I believe I have not yet called your attention to and while there is not a word to be said regarding the treatment of such a case, could it be recognized during life, the curious fact which is here demonstrated is worthy of your attention. You observe first that there is a sensible enlargement of the whole heart. Second, that the pericardium is closely attached to the organ everywhere; and third, that there is a hoop of calcareous matter, firm as bone, completely investing the heart in such a way that you would suppose the heart could

not move either in systole or diastole. You observe it here over the right auricle an inch in width and an eighth of an inch in thickness ; it runs downward and to the left across the right ventricle on to the left, about an inch from the apex, passing up the posterior of the heart in a line nearly parallel with that of its descent, till it becomes continuous with itself over the right auricle. Here, as it turns around the left ventricle, it has been broken to give admission to the interior of the organ, and here it is formed into shape of a rope and is of the size of the little finger. You notice that the structure is not homogeneous as you would expect that of bone to be, but that the fracture is irregular, and parts are of a whitish color and other parts are yellowish. When it is not broken you do not see it because it is wholly within the pericardium, but you hear its bony ring when I percuss it, and you can feel it and follow through its whole circle as distinctly as you can feel a coin in your pocket. The pericardium is immovably adherent to it throughout, and the heart by a loose, thready tissue.

The specimen came into my possession without a history, and all we can learn of the ante-mortem facts must be obtained from the specimen itself, and these are scarcely enough. The evidences of a pericarditis are found in this adhesion of the pericardium to the heart, and that this occurred years before death is rendered probable by the thready state of the adventitious membrane, and still more by the presence of this strange hoop that was formed in all probability after and in the lymphic effusion. It is probable also that the ring was completed before it had acquired its present breadth and thickness. In other words that it required years to get its present dimensions. Meantime the heart was beating. With how much efficiency we can never know.

I have never met another that at all resembles this specimen, and do not remember that I have seen a record of a similar case. But I have not made *extensive* search for it, so that I cannot say it is without a parallel in morbid anatomy, but it is safe to say that it is a very rare occurrence.

And while we are in the line of rarity

I will give the case alluded to a little while ago.

An Irish laborer, aged 30, a well-developed man, was admitted into the New York Hospital on 16th of January, 1836. He appeared to have had an inflammatory affection of the chest tissues three weeks before. The heart region was œdematous ; patient pale and feeble, but not emaciated ; pulse 130 to 140 in the minute and on exertion fluttering ; has cough attended by slight expectoration of mucus ; respiration oppressed ; incapable of any exertion—even turning in bed increases his dyspnoea and causes the heart to flutter ; tongue but slightly furred ; bowels constipated ; has nausea and vomits all ingesta ; tenderness of epigastrium.

Marked dulness in pericardial region and to the right and left of it. When the patient turns on his right side the dulness extends an inch farther to the right and recedes from the left slightly. When he turns on his left side the dulness extends equally to the left. Not the slightest sound of respiration can be heard over this whole region, though distinct in other parts, with an occasional mucous rale. The impulse of the heart, though not forcible, can be felt over all this region of dulness in its calmer action. Then the sounds are normal and its rhythm perfect, most distinctly heard at the base. The apex does not strike against the walls of the chest in any position of the body, not even when prone. A slight undulatory motion is perceived in the epigastrium and in the anterior parts of all the lower intercostal spaces at each pulsation of the heart. The action of the ribs in breathing is much restrained.

There may have been a peritonitis, but the man's present suffering arises from an enormous distention of the pericardium by fluid, and the heart's action is crippled by its pressure when exercise requires stronger beats.

The nausea and vomiting were supposed to arise from the condition of the bowels.

He improved on the use of a purge, and the nausea and vomiting ceased. Otherwise the treatment was by diuretics.

This patient remained in the hospital fifty-one days, being much of the time

able to sit up, and sometimes to walk a little. On the forty-ninth day he fainted while at stool, and for two hours the face and neck were livid; pulse just perceptible at the wrist, but too weak to be counted; feet and hands cold. The next but little improvement; pulse could be counted only now and then, for the most part a flutter; face livid; respiration labored, slow, and deep; the mind clear. On the fifty-first day he was found to be dead one or two minutes after his pillow had been adjusted. The disease had lasted, out of the hospital and in it, seventy-two days. A part of the time there had been œdema of the feet and ankles. The region of dulness was enlarged in the last few days of his life.

Autopsy three hours after death:

Face and neck congested and livid; surface over the abdomen, thorax, face and neck œdematous; those of legs and feet were not; superficial veins bled freely when cut; some clear yellow serum in abdominal cavity; undigested food in the stomach, apparently all he had taken in the last two or three days.

The liver was forced downward so that its upper surface was where its lower edge usually is, at the free border of the ribs. The diaphragm was forced downward so as to make a very large convexity downward into the abdomen.

The distended pericardium was *loose* and hard, occupying the whole anterior of the chest and extending out of view on each side when the sternum and cartilages were removed. It extended backward to the spinal column and downward so as to form the pouch in the diaphragm and depress the liver as stated above. Each lung was pressed into the posterior and upper portion of the thorax. The edges of the lungs were adherent to the pericardium on each side. A small quantity of fluid was found in each pleuritic cavity. The lungs were healthy but compressed.

The pericardium when opened was found to be one eighth of an inch in thickness and to have a firm, leathery feel, and contained a gallon of clear yellow serum. There was a thick covering of lymph over all the heart and all the inner surface of the pericardium. The two were united by tendinous threads and bound posteriorly and an-

teriorly. There had been adhesion of the pericardium to the heart anteriorly, as was evident from patches of lymph found on one surface, removed from one surface and found on the other, and from flakes of lymph attached by one edge of the floating fin and by broken threads so attached. The deposits on the anterior of the heart were stained with blood effused underneath them.

This case is copied from the New York Hospital Record Book, and was then written by myself soon after the date given above. There are two other facts relating to the case which are not there recorded, both of which are as distinct in my mind as if the case had occurred yesterday. How the first escaped record I cannot explain, except on the supposition of haste, as house physicians then as now were crowded with ward and other work and had little time for "writing up cases." The second was purposely omitted, because it might have been regarded as an improper criticism by an inferior on the judgment of his superior.

The first of these facts was that in the last week of the patient's life, after the dulness was found to be extending, the sternum was found broken up into several pieces, which were movable by pressure of the finger, one on another. I cannot say that it was a disunion of its natural subjoints. It seems to me that the fragments were of irregular shape, but of the breaking up of the sternum I have no doubt. The second fact is that I asked the two attending physicians in succession for permission to tap the pericardium. They both declined to perform the operation, or to permit me to perform it, and when at length the patient had nearly reached the "in extremis" I applied to the superintendent for his sanction of the operation, but he declined to give it because he was not a physician and had no control in the medical administration of the hospital, and so the patient died, and probably would have died if the operation had been performed at that late period of his disease. This would not have been strictly a new operation, as will be seen hereafter, but was then wholly unknown to the hospital physicians and probably to the whole profession in this country.

Tapping the Pericardium.—In vastly the greater number of cases in which inflammatory action has caused fluid effusion into the pericardial sac, the question of tapping does not arise. Every physician has been surprised in observing how quickly, after the inflammation has begun to subside, the fluid disappears. Such cases take care of themselves, and there is but little respiratory oppression, and what there is is of short duration. In such cases the question of tapping is not entertained. When the fluid, however, compresses the heart and obstructs the entrance of blood by the venæ cavæ, and encroaches on the breathing space by its bulk, when the patient's life is in danger by the quantity of the fluid, then I must urge as I did in the case just narrated, that tapping is positively demanded. But is there not danger of wounding the heart? Undoubtedly, and it was for this reason the earlier operators opened the pericardium with bistoury and scissors, instead of a trocar. But regarding these wounds, the experience of New York surgeons in the last thirty years has in some degree diminished the dread of them. One man was shot through the heart and lived several days. After death the bullet was found in one of its cavities. Another man lived eighteen or twenty days after a bullet had been lodged in the septum ventriculorum. Of late the right auricle has been purposely penetrated by a hollow needle for the depletion of this cavity, and it is said that the patient was temporarily improved by the operation. Still we all feel that no fool's play can be permitted about the heart, and it is the aim of every operator to enter the pericardium and at the same time avoid the heart. In almost all the cases requiring tapping, when the patient is in the prone position, the heart falls backward to the posterior limit of the sac, and the fluid comes in anteriorly between the sac and the heart. The depth of the fluid in this position varies from half an inch to an inch or more. It is possible to penetrate the pericardium anteriorly, and yet stop short of the heart itself. Otherwise, choose a point which the distended pericardium occupies, but which is off the limits of the heart.

Dr. John B. Roberts, in 1880, published a volume entitled *Paracentesis of the Pericardium*, in which he gives a table of all the cases in which this operation had been performed at that time, so far as he could rely on the printed reports. He finds in all sixty, in these the point of insertion was the third intercostal space in 2; the fourth in 22; the fifth in 18; the sixth in 5, making 47 in which the point of insertion is stated. Those made in the third and fourth space were over the heart; those in the fifth would have a good chance of escaping the heart, especially if made against the upper border of the sixth rib; and those in the sixth would be nearly certain of being off it, unless the organ was enlarged. In these sixty cases there were twenty-four recoveries. These are distributed as follows: Of the two in the third space, 0; of the twenty-two in the fourth, 10; of the eighteen in the fifth, 9; of the five in the sixth, 2. So three of the recoveries belong to the cases in which opening was performed with bistoury and scissors, or those in which the place of tapping is not stated. Success is about equally divided between the fourth and fifth spaces. With the fifth the recoveries were just one half, for the fourth a fraction less, or $\frac{9}{11}$. Twenty-four recoveries in sixty operations does not seem to be a brilliant success, but if we can suppose that twenty-four persons by this means were really snatched from death, it assumes another aspect. I have not attempted to look up and read up the cases which Dr. Roberts has tabulated, but if many of them were rescued from a condition anything like that which is detailed of the case in the New York Hospital, where I implored permission to tap the patient, the operation has accomplished little less than resurrection.

Dr. William Pepper's case (*Am. Jour. of Med. Science*, April, 1879,) resembled mine in severity, with this difference, that mine was *moribund* and left to die, his "was evidently moribund," was tapped and recovered, so far as the cardiac effusion was concerned, and died fifteen months later of an unusual form of disease of the serous membranes. The same diathesis which produced the latter may have and probably did produce the pericarditis, but at the inspection

the pericardial cavity was wholly obliterated by adhesions, and appeared to have nothing to do with the fatal issue. He began with a most discouraging case, but he brought it out triumphantly.

His trocar was inserted "in the fifth intercostal space about one inch inside of the line of the left nipple, i.e., nearly in the normal position of the apex beat, and over eight ounces of reddish serum were removed." Relief was immediate, recovery was slow and incomplete, as she was weighed down by other disease.

As to the mode of operation, whether by what is now called "aspiration" or by the old-fashioned trocar is not very emphatically taught by Dr. Robert's table. Of his whole, sixty, thirty-six died. Among these sixty, "aspiration" was practised in twenty-four. Of these, ten recovered and fourteen died; or, in figures, $\frac{3}{8}$ of the whole died, and $\frac{7}{12}$ of those who were "aspirated." Aspiration of the pericardium does not appear to have been practised till about fifteen years ago. Since then it has been preferred by most operators to the trocar, and it may be that a better knowledge of the operation gives it its apparent advantage. Dr. Roberts professes a decided preference for it. He would have the receiver exhausted of air beforehand, the penetrating instrument introduced slowly, and the whole so arranged that the operator can see the first drops of fluid that escape from the sac, and thus avoid penetrating too deeply. Dr. Roberts considers the "Point of Puncture" at some length, and holds that one of two should be preferred—"the fossa between the ensiform and the costal cartilages of the left side, and the fifth intercostal space near the junction of the sixth rib with its cartilage," and after some reasoning he adds: "Therefore I should tap in the former position as a rule," i.e., the fifth left space, "reserving the latter" left xiphoid fossa "for special cases, where there was some indication for making an exception."

In such a case as that in the New York Hospital the puncture might be made almost anywhere in the front of the chest below the fourth rib, for the sac extended as much to the right as to the left, while the heart kept its proper position. In such a case, "Dr. Robert's

suggestion to tap on the right side of the sternum in the fifth space, about four and a half to five centimeters from the edge of the sternum," would be safe and proper. But *such* cases are extremely rare, if indeed another gallon sac has been seen by anybody. But any pericardial effusion that produces distress enough to raise the question of tapping will be very exceptional if it does not extend to the right as well as to the left and how far it is easy to ascertain. You are too fresh from your anatomy to make it needful that I point out the danger of wounding the internal mammary artery.

Tapping the Pericardium.—Recovery.—It was in the Leeds Infirmary, service of Dr. Allbutt, case reported by the house physician, and published in the *Lancet* January 27, 1882. The patient twenty-two years of age. He had had rheumatic fever six or seven years before. He was admitted December 23, 1880, with pains in his joints, not undoubtedly rheumatic. Salicylate of soda did not relieve him; seemed to produce some delirium (20 grs. every two hours) and was discontinued. Had pleurisy on the 23d of January; he had been steadily improving on the last four or five days. This morning he is pale and breathing rapid; not in any great pain, but a little discomfort in the breathing; cardiac dulness much increased. It begins at the third rib and extends downward to the sixth, and *is much increased to the right of the sternum*, distinct friction fremitus felt over the upper part of dulness; friction sound heard over upper half of dulness, the systolic portion of which was double; pulse 130, evening temp. 100.6°

Feb. 2.—Pericardial effusion rather increased. The præcordial region has a full distended look, no intercostal sinking. The absolute dulness begins now almost at the second rib, and extends down to the seventh, laterally on the fourth rib it measures eight inches; heart sounds obscure and distant; no friction sound now. To-day for the first time the epigastrium is full and tender, and dull on gentle percussion. The edge of the liver on the level of the umbilicus. Temperature, 100°; pulse 128.

Feb. 7.—It is evident that he cannot hold out much longer if present condition continues. A fine aspirator needle was introduced in the fourth left space,

two inches and a half from the median line, directed upward and backward until a cavity was clearly entered at the depth of an inch and a half. Only about an ounce of bloody turbid serum could be drawn off. It was not till the 11th that the patient began to mend. He continued to improve and left the hospital May 18.

It may be that the withdrawing of an ounce of fluid in this case relieved pressure, and so favored absorption. Every physician of large practice has seen this kind of relief in pleurisy. A patient has one pleural cavity filled, distended with serum. He tries blisters and diuretics in vain. I have tried all approved means for two months without making any favorable impression. A portion of the fluid is then drawn off, and it need not be a large portion; directly the same agents that were in operation before become effective, and the fluid is absorbed in a few days. That Dr. Allbutt's patient was relieved by absorption needs no argument. Whether the absorption would have occurred without the tapping may be a question. The statement I have quoted, "It is evident he cannot hold out much longer if the present condition continues," has an important bearing on this point. If there are cases in which the removal of a part of the fluid will determine the absorption of the remainder, such cases will be a sort of counterpoise to those that require repeated tapings.

Signs of Pericardial Adhesions.—On this topic there has been a great deal of fine reasoning, and some good observation, but observation, and apparently good observation, varies widely in results. Indeed the cases must vary one with another. I have already shown specimens in which the pericardium is closely and firmly adherent to the heart, so that the pericardium must make every movement that the heart makes, and have shown how this kind of adhesion produces a twisting movement in the diaphragm. I have also shown you specimens in which the adhesion was not an adhesion, though it was at one time. The plastic matter had been drawn out in threads half an inch long, by the interposition of serum. The serum remaining more than the usual

time, the plastic matter may lose its adhesiveness, and the connection be kept up by threads only. Again, you have seen when close adhesions are breaking down, the last stage is marked by a multitude of very fine threads running from the pericardium to the heart, and both cleared of false membrane except at the points of attachment of these threads. In either of these cases the heart has its natural play without dragging the pericardium after it. In the case of dissolving adhesions you will rarely understand that a set of symptoms indicating adhesion may have lasted one or more years and then have gradually disappeared.

Still again you have seen instances of close adhesion, perhaps equally close, while the hearts varied greatly in the quantity and quality of their muscular fibres. Here, for example, is a *cor bovinis*, hypersarcosis cordis; and here is one that is not hypertrophied, but of natural size; the pericardium is closely adherent to each. The power of one is double, perhaps triple, that of the other. This is not, perhaps, felt in the vessels because there is a grave obstruction at the aortic valve, but it is exerted in the chest and felt in its walls, and will give signs of its presence that the heart of normal size cannot give. Here is still another: it is, perhaps, under size, but I will not make a point of that; it is clearly not enlarged, but it is yellow in color, in consistency flabby and soft. It is an instance of the oily degeneration of the muscular fibres of the heart. The pericardium, you see, is closely attached as in the others. But you would expect during life no signs of this adhesion whatever.

There is another point in this history which is of great importance. It is said that when the serous pericardium is inflamed the diseased action shows a disposition to penetrate the whole thickness of the sac, and appear on its outside, and that the result of this action is often a firm adhesion of the pericardium to the inner surface of the sternum and of the costal cartilages. That this does occur cannot be denied, but as to its frequency I may state that most of numerous specimens by means of which I have demonstrated to you the various phases of pericarditis were removed

from the body by my own hand or under my immediate direction, and that when the sternum has been separated from the clavicles and the cartilages from the bony ribs, the raising of these was an easy work ; a few broad, careless sweeps of the knife have sundered the scanty connections of the sternum and its appendages to the parts within. It has rarely been necessary to make careful dissection to separate the pericardium from these parts. But when such adhesions exist, they certainly have very telling effects among the signs of pericardial adhesion.

It comes then to this : the most marked of these signs will be observed when the adhesions are close, when the heart is hypertrophied and strong, and when strong attachment exists between the anterior of the pericardium and the inner face of the sternum and cartilages, and that there will be feeble external signs when such expericardial attachments do not exist and the heart is of usual strength, and none at all when the heart is feeble, whether the expericardial attachments exist or not.

In consideration of these points the following can be understood :

In a case in which it was all but certain that these adhesions existed, and in which they were found to be "close and universal" after death, Dr. William Pepper sought for such evidences as have been supposed to prove it. "But in fact they were entirely absent. The impulse of the heart was diffused and feeble, and unattended with thrill. There was no recession of the intercostal tissue during the ventricular systole, nor any diastolic collapse of the jugular veins, nor recession of the epigastrium. And this was the case despite the fact that there existed those external adhesions between the pericardium and the chest wall in front, which seem in some cases to render the above-mentioned signs of pericardial adhesion more evident. This case must be regarded as another illustration of the fact that while, when these signs are present, the existence of adherent pericardium may be assumed with great probability, they may all be absent in cases of complete adhesion."

Dr. Sibson, in Reynold's System of Medicine, who has written elaborately if

not lucidly on these signs, says : "The discovery of adherent pericardium during life is in some cases impossible, in some doubtful or difficult ; but in others, and these are among the most important cases, its existence can be ascertained during life, on reasonable and well-ascertained grounds."

Another observer, writing in the *Union Medicate*, relates a case, apparently, of tapping the pericardium, and states that "the doubtful position and value of this operation makes the case of interest." The patient suffered from a pericarditis with effusion, produced by exposure to cold. The symptoms of pressure were severe ; a puncture was made and a little fluid removed. A month later the patient had double pleurisy. He finally recovered with pericardial adhesions. ("The *Medical Record*, Jan. 6, 1883."

Puncture and Suture of the Heart.—Dr. Roberts read a paper at a meeting of the Philadelphia College of Physicians, in which he cites some instances in which the heart has been punctured when the purpose was to tap the pericardium, and claims that these accidental punctures did no harm, and calls attention to Dr. Westbrook's paper (published in the *Medical Record*, Dec. 23, 1882), in which he describes an intentional tapping of the right auricle to relieve a heavy congestion, and urges, that if a few drachms of blood taken from the heart will give as much relief as the same number of ounces taken from the arm, it is a great economy of blood.

He thinks also that important results will follow Dr. Block's experiments on animals, which show that in them not only can the pericardium be opened to remove clots of blood, but that opening the right or left ventricle and entire compression of the heart for the application of suture, can be supported by rabbits for several minutes. Even if the cardiac pulsation and breathing stop during the operation, death, he asserts, does not necessarily follow. (For Dr. Block's experiments see *Jour. of Med. Science*, Jan., 1883, p. 274 ; *N. Y. Medical Journal*, March 17, 1883.)

Pericardial Puncture and Incision and Drainage.—At a meeting of the Royal Medical and Chirurgical Society, Dr. Samuel West reported the case of a

boy, 16 years of age, who had a large pericardial effusion. The symptoms became so urgent that paracentesis was performed. Pus was obtained. Three days later paracentesis was again performed, and subsequently the pericardium was laid freely open, evacuated, washed out, and a drainage-tube inserted. The boy recovered completely in five weeks, having had in the meantime an attack of urticaria. The place selected for the operation—puncture—was the fourth intercostal space, immediately behind the left nipple. The amount of fluid obtained at the first tapping was fourteen ounces; by the incision, two quarts. There was a peculiar epigastric prominence noticed before the paracentesis, which disappeared after the operation. The pulsus paradoxus was constant till the free incision was made, and ceased immediately after that.

Dr. West then gave a short account of the only other recorded case of incision of the pericardium for purulent pericarditis, by Prof. Rosenstein, of Leyden, which also recovered.

Dr. West then gave a history of the operation. It was first suggested in 1649. It was first practised in Barcelona, in two cases. In 1841 there was a remarkable series of cases in an outbreak of scurvy in Russia, in which the pericardial effusion was mostly blood. Nine were operated on, and six recovered. In 1854 Trousseau's essay was published upon some cases of his own and of Mr. Aran, which revived an interest in the subject. In 1866 Dr. Clifford Allbutt introduced the operation into England, and it was performed by Wheelhouse and Mr. Teale. Rosenstein, in 1871, made the advance, in opening the pericardium by incision with drainage. A list of recorded cases, including some hitherto unpublished, was given in a tabular form, making 79 cases in all.

Phthisis and pleurisy were associated with 23; rheumatism with 11; scurvy with 9; general dropsy with 3; injury with 3; in 12 there was no associated disease. The amount of fluid evacuated was in 46 cases less and in 38 more than a pint. The larger quantity was in the scorbutic cases, and from one of these about ten pints were obtained.

Dieulafoy selected the fifth left space, about an inch from the sternum, as the safest point for puncture. Only one case is recorded in which the operation was fatal. (*Amer. Jour. Med. Sci.* July, 1883.)

Penetrating the Right Ventricle.—On the presentation of Dr. West's case of pericardial puncture and incision, Dr. Hulke said that he considered it advisable to dissect down carefully to the pericardium before any incision was made, and if a trocar and canula were employed, he advised a very careful use of them, and that the trocar be frequently withdrawn to form an opinion of the parts reached. He had himself, after medical consultation, in a case that was believed to be one of pericardial effusion, once inserted a trocar and canula somewhat boldly, and the withdrawal of the trocar had been followed by a jet of blood which gave him great alarm, but happily relieved the patient. A subsequent *post-mortem* examination showed him that he had punctured the right ventricle, and that the case was one of universally adherent pericardium. (*Am. Jour. Med. Sci.*, July, 1883, p. 264.)

Dr. Partzsky is reported to have brought before the Moscow Physico-Medical Society a very interesting case of pericardial effusion, treated by repeatedly performed tapping, and finally by incision of the pericardial sac, with subsequent drainage. These are the author's views: 1. In a vast majority the operation—that is, puncture and aspiration, and, if they fail, subsequent incision with drainage—is not attended with any danger. 2. It brings rapid relief, and its palliative usefulness is admitted. 3. In the absence of such complications as tubercles, cancer, organic changes of the heart, etc., the operative treatment of non-purulent pericardial effusions may prove successful in the majority of cases. 4. In purulent pericarditis an early operation is justifiable, in order to prevent dilatation and fatty degeneration of the heart, which generally supervenes very rapidly.

THE RECOGNITION OF THE INITIAL SIGNS OF PARETIC DEMENTIA (PROGRESSIVE PARALYSIS OF THE INSANE) BY THE GENERAL PRACTITIONER.

By E. C. SPITZKA.

The writer would scarcely venture to bring up, what not a few may regard as a hackneyed subject, had his attention not been prominently and repeatedly called to the neglect by physicians of those alarming symptoms, which should warn them of the development of one of the most frightful scourges of our business communities. Numerous pamphlets have been issued on this subject within a few years; but while several of them are excellent and valuable contributions to our knowledge of rare features of the disease, and to this extent very useful to the specialist, those addressed to the profession at large have usually been of such a character, as to strengthen instead of weakening the erroneous conceptions* which it should be in part the object of such papers to expose in their true light.

It is a mistake to believe that Paretic Dementia, at its onset, always declares itself by marked and unmistakable signs. Even the most experienced alienist may be in doubt, and be eventually guided in concluding as to its existence or non-existence rather by the general complexion of the case than by the presence or absence of any absolutely pathognomonic sign. Usually the first subjective symptoms are related by the patient; and if not related by him, are constantly before his mind, but kept

concealed either from *amour-propre* or a desire not to alarm his family. It must be borne in mind that the more intelligent the patient, the more likely is he to know or to surmise the serious significance of the premonitory indications of mental failure. While a common day-laborer may pass unconsciously through the initial period of the disease, manifesting its development to his surroundings, by amnesia and bursts of temper, and if he make any complaint to a physician, will base it on peculiar *visceral* sensations, a business man will recognize and admit (perhaps with some hesitation) that his powers of *attention* and *concentration* are failing, that he no longer entertains the same affection for his family as before, and that he *forgets* the simplest facts. The ignorant hod-carrier turns up in the dispensary with the complaint that there is an "animal in his belly," that his "heart is turned to stone," that his "semen is drawn from him in some mysterious way," or that his bowels have become occluded. The business man fears that he is going to *lose his mind*, and in two cases in my office practice, the patients, whose attention had been directed to the testimony given in several cases where the existence of this disease came into question, had made the diagnosis of their disorder correctly. Simon relates the case of a medical student, who during the progress of his disease, asserted that his brain was atrophying, and pointed out, on his head, the spots under which the atrophy was most intense. It may be regarded as a mere coincidence that after death, marked atrophy was found at the very place pointed out by the patient during life, but it goes to show how great a difference the educational status of the subject makes with regard to the subjective interpretation of his symptoms, and the likelihood of his consulting a physician in the early phases of his disorder. That in the late phases this difference between educated and uneducated paretics becomes gradually obliterated, finds an easy explanation in the dementia, which terminates the progress of the mental symptoms in both classes of patients, and which reduces both to nearly the same intellectual level.

It is then a suspicious sign when a pa-

* It is not necessary nor—for obvious reasons—desirable to particularize here. Suffice it to say that in one pamphlet on "General Paresis" not a word is said about the depressive delusions in this disease, and many physicians, to the writer's knowledge, misled by the fact that the author of the pamphlet referred to was a superintendent of an asylum, and might have been reasonably supposed to be familiar with the every day phenomena of a common disease, believe to this day that the diagnosis of the latter is not established unless extravagant ambitious delusions are present. Is it not a striking commentary on the state of psychiatry on this side of the Atlantic, that another superintendent of an asylum considered it worth while to plagiarize this erroneous, imperfect and misleading production?

tient complains of diminished working power, associated with a subjective sense of physical and mental insufficiency. These symptoms are, however, common to a number of other conditions. They are found in the initial period of mania and melancholia, of hypochondriacal monomania, and they are also common results of simple nervous exhaustion, whether it be destined to be recovered from, to become chronic, or to pass into that form of nervous and mental failure, which I have called "primary deterioration."*

The additional symptoms which give mental failure the characteristic complexion of initial parietic dementia, are what I may be permitted to designate as the peculiarly *focal* and *vaso-motor* signs.

It is abundantly recognized to-day, that the morbid process in the nerve structures which underlies parietic dementia, has a tendency to concentrate itself in special localities. Thus, large areas on the hemispheres may be quite healthy, as far as our methods of examination permit us to arrive at a conclusion; while others may be intensely diseased. In the same way we may have atrophy of special nerve tracts in the pons and medulla, and a concentration of the degenerative changes in certain nerve nuclei and nerve roots, while other tracts, nuclei and roots are nearly healthy. What is true of the last stage of the morbid process, is probably also true of its earlier—what some would call its functional period. We find that the failure of the memory is focal, as it were. The same is true of the speech disturbance, if any exist. The patient finds it difficult to remember certain isolated groups of facts, while others are well-remembered. He does not, like the senile dement, remember all earlier facts equally poorly; he remembers some earlier and some recent facts fairly, and other earlier and recent facts badly. It is as if special *lacunæ* existed in the memory.

Another class of symptoms may be ranged under the head of the focal signs, namely those theoretically attributable to disease of the pons and medulla. The peculiar emotional disturbances, as

they are called, and which are frequent accompaniments of the initial period, are, when present, *positive* indications of the disease. The writer cannot now find a record of any case carefully observed in the initial period in which these disturbances were not present. The patients feel the *physical* indications of crying, they may even have the flow of tears, nay the contortions of the face, the convulsive action of the respiratory muscles, and the after sensations in the throat of weeping, *without any real emotion*. The patient may actually be pursuing rather a pleasant train of thought, as his peculiar symptom overtakes him. It is rarely known for this extreme phase of emotional automatism to be present in the initial stage. Usually the patient states that the "bitter feeling" of a choking emotion rises in his throat, although he does not feel correspondingly sad at the time, and that he is able to fight it down. I have often observed the patient during such a state, his conjunctiva reddening, as before crying, but few or no tears following, the patient making a successful effort to master the emotion.

The corresponding antithetical emotional automatism, that of laughter, is much less common than the one described. The patient here displays a vacant smile, while reciting the worst features of his malady. Often this is followed by the crying spell.

Transitory disturbances of other functions of the pons and medulla are also found, such as slight dysphagia, unpleasant sensations in the throat and disturbance of the salivary secretions.*

But the most important evidences are those which, attributable to the brain axis as their seat, may be designated as the *vaso-motor* signs of parietic dementia. I do not here refer to disturbances of the general circulation, for these are not constant in the first period of the disorder, but to those signs which indicate disturbance of the cerebral circulation itself. Those cases in which the vaso motor catastrophe declares itself in the shape of an apoplectic attack, are rare.

* Perhaps the gastro-intestinal disturbances common to the early stage may be due to the early involvement of the vagus nucleus. Gaping, yawning and obstinate singultus have been noted by the writer.

* Insanity, its Diagnosis and Treatment. New York: Bermingham & Co., 1883.

The feature which enables us—in the vast majority of instances—to determine that the attack is not an ordinary apoplectic attack, is the rapid recovery (within a few hours, days or weeks) from such severe symptoms as hemiplegia, aphasia and coma.

More frequently epileptiform seizures are found. These are only exceptionally of the character of the *grand mal*, more commonly they resemble an attack of *petit mal*, and there is every connecting link between the momentary total loss of consciousness and mere fits of abstraction. It is almost a criterion of parietic dementia that such attacks, with or without a congestive rush of blood to the carotid district, occur after meals, after unusual mental exertion, and are accompanied by a tendency to go to sleep.*

I have said nothing of the peculiar motor signs of the disease, or of those prodromal signs referable to the spinal cord, and which are the leading indications in that type of the disorder which is of the spinal type, and omit them from consideration, because their development marks a period which can no longer be called "initial." At the same time, I would like to caution against too absolute a reliance upon a fine tremor of the tongue or hands. This "emotional tremor" is found in other forms of insanity, and a tremor very like it, in numerous other nervous conditions, some of them even being nearly within physiological limits. It is my intention merely to depict those symptoms and symptom groups, which in the absence of the physical signs usually regarded as essential criteria, enable us to determine the existence of parietic dementia in that incipient stage, when treatment may still be capable of accomplishing something. In this early period I have found no other motor symptom in several cases whose subsequent course justified the diagnosis made, than a slight relaxation in the

facial features, and an *inability to keep the tongue out*, from a difficulty in fixing the attention on this continuous effort of the will.

Summing up in brief, the prodromal signs of parietic dementia are, first, depression, partly the logical result of the patient's apprehensions; second, diminished power of application and concentration; third, irritability in varying degree; fourth, lack of true emotional depth, associated with emotional automatism; fifth, "vaso-motor" spells usually following meals and exertion; sixth, peculiar "gap-like" failure of the memory; and seventh, transitory focal symptoms pointing to the brain-axis as their seat.

Intolerance to alcoholic beverages, pupillary changes, explosions of anger, oddities in dress and behavior, fibrillary tremor of the tongue, oft-described tremor of the head, the peculiar associated and auxiliary innervation of certain facial muscles—all these characteristic signs of parietic dementia may be absent in the prodromal period of that disease. In this period, whose recognition is most important, there may be no other signs than those enumerated. Here the therapist may accomplish a cure perhaps; a delay of the outbreak most certainly; whereas, when tremor and co-ordinatory troubles develop—and their development appears to be equivalent to the progress of permanent tissue changes in the nerve axis—the disease will take its course, not materially modifiable either by sound or unsound management.

I may add to the above, that when the prodromal symptoms of parietic dementia resemble those of other psychoses so closely that a discrimination at the time of the examination is impossible, one prominent fact aids the diagnostician: while there are variations from day to day in the prodromal periods of all psychoses, these are in none so rapid and bizarre as in parietic dementia. The change in the emotional state is often momentary. While generally depressed, such a patient may sign his name with a flourish indicative of exaltation, and although on the verge of bankruptcy, according to his apprehensions, seize on some project—in itself reasonable enough—whose hopefulness is in striking

*I believe that no one has yet called attention to the remarkable analogy between "blind-stagers in the horse (Dummikoller of the Germans) and parietic dementia in man. In the former disease the peculiar vaso-motor symptoms open the scene, fits of abstraction and unconsciousness follow, insane explosions occur, morbid appetite alternates with anorexia and *post mortem* signs of inflammation of the brain membranes and atrophy of the convolutions are found.

contrast with the general emotional state.

Here, as elsewhere, the fundamental feature of the mental state of the parietic—that is, the loss of associating power—is the active factor. Nothing is so characteristic of the disease as the inability the patient feels to follow out a continuous linked reasoning process for any length of time. Brilliant he may be in repartee, skilful in striking a bargain, original, in a limited sense, in his literary productions, but he cannot maintain the effort as of yore. He does not adhere to a definite plan of work. He jumps from one line of labor to another, and frequently seeks relief in a change of occupation. He has, in short, lost his mental unities. At first the gaps in them are slight; they are destined, as those familiar with the later progress of the disease know, to become larger, to run together, and to leave but a disjointed wreck behind. To detect them in their first appearance, is to recognize the first development of the disease; and to recognize the latter, affords the only opportunity of accomplishing any material good in the typical non-syphilitic form of parietic dementia.

POST-MORTEM EXAMINATION OF A RECENT SUB-CORACOID DISLOCATION OF THE LEFT HUMERUS.

REPORTED BY

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Island College Hospital.

On the evening of October 18, 1883, a middle-aged man, of good physical development, in a fit of insanity, jumped from a third story window to the pavement, causing a compound fracture of both femora in the lower third, and a *dislocation* of the left shoulder. The shock was excessive. He was conveyed by ambulance to the Long Island College Hospital, where I saw him, with my colleague, Dr. G. H. Atkinson, who was the visiting surgeon on duty at the time. We gave directions to make the patient as comfortable as possible. The patient died that evening about six o'clock.

The dislocation of the humerus had not been reduced, on account of the condition of the patient.

Permission was obtained to examine the left shoulder, in order to determine the points of interest in regard to the dislocation. The examination was made by Dr. Atkinson, Dr. Wight making notes, from which the points to be described were taken. An incision began about two inches inward from the end of the acromion, and over its anterior border, was made outward and then downward to the middle of the arm, through the tissues down to the muscles, and the flaps so made were drawn aside well forward and backward, so as to expose quite extensively the sub-tegumentary tissues. Then a transverse incision was made, about one inch below the acromion, through the deltoid and the coracobrachialis, exposing the deeper tissues. The long tendon of the biceps brachii was in its groove and relaxed; the three out-rotators, the supra-spinatus, the infra-spinatus, and the teres minor, had some lacerations, but were still firmly attached to the greater tuberosity of the humerus; the sub-scapularis was firmly attached to the lesser tuberosity of the humerus, and drawn tensely over the humeral head; the articular capsule had a *longitudinal* rent along the inner side of the long tendon of the biceps brachii; it was tense, but sound on the parts adjacent to the tuberosities; it was torn *transversely* from the neck of the bone corresponding to the side where the head projects, the rent being as long as nearly one-half the circumference of the anatomical neck; the head of the humerus was not completely out of the capsule; the upper part of the posterior aspect of the greater tuberosity was near the glenoid cavity; the upper surface of the anatomical neck of the humerus was directly under the coracoid process of the scapula; the fascia passing from the coracoid process to the glenoid fossa and the inner and anterior lip of the glenoid fossa were resting on the posterior surface of the anatomical neck. *The dislocation was sub-coracoid*, that is, the anatomical neck of the humerus was directly under the coracoid process of the scapula, the head of the humerus was resting on the tissues just internal to the coracoid process, and the greater

tuberosity of the humerus was nearly in the glenoid fossa.

A large tegumentary scar from an old injury was on the anterior axillar fold, and on account of its contractions would have complicated reduction of the dislocation. The humeral attachment of the pectoralis major was cut, and the head of the humerus was put into the glenoid fossa. The head of the humerus was then pulled down under lower edge of the the glenoid fossa, and could be held there with difficulty. And it could readily be seen how difficult it would be to dislocate the head of the bone into the sub-glenoid position during life, and admitting the fact of such a dislocation, it could also be seen how very apt a consecutive dislocation would be to take place under the coracoid process. And in the next place, it could easily be seen how very difficult it would be to lift the greater tuberosity of the humerus inside the coracoid process of the scapula, and make a complete sub-clavicular dislocation of the humerus—in fact, a sub-clavicular dislocation could not take place without great violence and great damage to the shoulder and the axilla. Reasoning in this way on the facts of this examination, we can only conclude, that the sub-coracoid is the most frequent dislocation of the humerus. And this conclusion is supported by an accurate and careful examination of many cases of dislocation of the humerus that I have had the opportunity of seeing in my own practice, as well as the practice of other surgeons.

And during our examination and manipulation, I was forcibly reminded of the question of sub-luxation of the head of the humerus. I could readily comprehend how the head of this bone might be pushed almost out of or off the narrow and shallow glenoid cavity, when there had been no rupture of the capsule. Of course, the capsule must be large and capacious, and not prevent somewhat extensive motion of the femoral head. In the case above described, the transverse rent in the capsule was not more than one-half inch wide, and the head of the humerus could have moved from the glenoid fossa one-half the distance to the place where we found it, without rupture of

the capsular ligament. So I can see that a case might happen from time to time in which the head of the humerus is not quite in the glenoid fossa and not quite inside of the coracoid process—when it is not exactly a sub-coracoid dislocation—but when the displacement may be called a *sub-luxation* of the humerus, by which we mean that the head of the bone is not wholly in nor wholly outside of the glenoid fossa.

AN OPERATION FOR CORRECTING A CONGENITAL MALFORMATION OF THE LEFT AURICLE. *

WITH THREE WOOD CUTS.

BY OREN D. POMEROY M.D.,

Surgeon to the Manhattan Eye and Ear Hospital, New York.

E. F. W., Jr., æt. 16, had a malformation of the left auricle, which had existed since birth. Two operations previously performed by a surgeon of Boston, Mass., had rendered the condition of the auricle worse rather than better, and at the present time, was, as the figure will show, quite unsightly. It obstructed the hearing, inasmuch as the upper portion of the pinna was folded to some extent over the meatus externus. There was no history of malformations of the auricle in any of his ancestors, or of his relatives. He was a second child; the first one being still-born, from what cause is unknown. During the mother's pregnancy with him, at the 8th month, she had a severe fall on the ice, bruising her left side and lacerating her left auricle. The child at birth was very small and feeble, with a marked arrest of development of the left side, including the auricle, which increased rather than diminished with the lapse of time. The auricle, with the meatus externus, was located a half inch lower than that of its fellow. It was also somewhat diminished in size. The muscles of the left side of the face, the palate and the tongue are less developed than those of the right side. There is some impediment in his speech. The right side of

* Read before the N. Y. State Medical Society, February 5th, 1884.

the body is much stronger than the left. At four years of age the surgeon, before referred to, removed two globular masses about the size of a pea which were pendant from the lobule.

Besides this, he removed a V-shaped



Fig. 1. Side View of Deformed Auricle.

piece of skin from the supero-posterior part of the auricle. The operation herewith described was done on the 16th of August, 1883. As the patient was not very strong, and had amital-regurgitant murmur, it was feared that the exhibition of ether might be unsafe. The matter was compromised by giving the patient a small quantity of the anæsthetic, never reaching a state of complete unconsciousness. An incision was made separating the auricle completely from the side of the head as far as it was found to be out of position; this extended to a point in line with the vertical or long diameter of the auricle when in normal position, and divided about half of the auricle from its attachment, enabling it to be placed in a normal position by drawing it backward and upward. From the upper extremity of the incision already made, a second incision was carried upward in the line of what should be the vertical or long meridian of the auricle, to the distance of one inch and a quarter. By undermining the skin on each side of this incision an opening was made sufficiently wide to allow the cut border of the auri-

cle to be inserted. In order that it might stand out from the head with a natural inclination, it was found necessary to pare off a small portion of the upper or posterior edge of its cut surface, when it accurately fitted into the incision made in the skin on the side of the head, and giving it the proper inclination. It was fastened in position by twenty silk sutures. After placing the sutures along the anterior edge of the cut surface it was found that the auricle in its new position had accurately fitted to the incision, so that no sutures were needed to coaptate the posterior border. At the summit of the auricle two sutures were inserted fastening it to the side of the head, one of which was introduced into the posterior border of the incision. This caused the upper portion of the helix to adhere to the scalp instead of standing out free, as in nature; but this manoeuvre seemed necessary, as it was feared that if this portion was allowed to remain separated from the attachment its vitality might be endangered. In front of the meatus, near the faulty attachment of the auricle, was a slightly raised cartilaginous development somewhat resembling a rudimentary concha. The skin was removed from this, when it was pared down to the level of the surrounding parts, and the previously dissected integument was returned to this uncovered surface and brought into line with the incision which had separated the auricle from its faulty attachment by means of sutures. After the completion of the operation, a line extending up the front of the auricle about two thirds of its vertical height, then rather suddenly bent backwards to meet the incision in the scalp, to which the displaced auricle was attached, indicated the position of the sutures. The wound was thoroughly cleansed with a carbolic acid solution, and carbolated cotton wool was applied to it in the form of a compress which supported the auricle in its new position. This was retained by a roller bandage passing around the head in a vertical direction.

On Aug. 18, the wound in the lower portion had completely united. The auricle at the upper part was somewhat swollen and a little reddened. The sensibility of the part was normal. The wound was cleaned twice a day with

carbolic acid solution; bandaging and compress continued.

Aug. 22.—All the sutures were removed except three at the upper portion of the wound; the remaining part being completely healed.

Aug. 24.—These sutures were removed, together with the compress and bandage, and the wound was found perfectly closed from one end to the other. The apex of the auricle is a little irregular and pointed in its curvature, consequent on the malformation, but much less than would appear from the wood cut. The only defect in the operation was the fastening of the free upper portion of the auricle to the side of the head by the sutures, but it was thought that if this part were left free, as in nature, it might slough, as its border represented a cut surface (where it was removed from the side of the head) which would have necessitated the coaptation of its opposite cutaneous edges by means of sutures. As the patient was perfectly satisfied with the result, no further operation was recommended. If, however, another were desired the auricle could be again separated from the side of the head sufficiently to restore its normally free upper portion, the wound on the side of the head being closed by sutures, and the cut surface on the auricle covered, (after paring off a little to produce a normally rounded shape,) by approximating the skin of the opposite edges.

The only embarrassment in the operation was in the fear that sutures in the cartilage might cause sloughing. Most of the sutures were only inserted in the skin, but at the upper portion it seemed necessary to pass the sutures decidedly into the cartilage in order to cause sufficient firmness of hold. These sutures produced more irritation than the others, but did not result in the formation of pus even in the suture apertures. I have had very little experience in operations on the auricle, but a case reported in my book on the Diseases of the Ear, where a portion of the auricle was lost, which resulted in a deep gap dividing it into an upper and lower portion caused by a suppurative process extending from the mastoid, will illustrate a few points. In this case the inexact opposite edges caused by the loss of tissue, was refreshed by an incision which removed a

portion of the cartilage, but the coaptating sutures were passed only into the skin. The healing was, however prompt and very little indication of slow repair was manifested. In the Arch. Otol., vol. x., p. 97 *et seq.*, Dr. Edward T. Ely reports a case occurring at the Manhattan Eye and Ear Hospital, where an operation was done by him for prominence of both auricles, they standing out from the side of the head nearly at right angles, producing a very unsightly appearance. No other important fact connected with the case.

In the first operation on the right "an incision was made through the skin, along the entire length of the furrow formed by the junction of the auricle with the side of the head posteriorly. This was joined at each end by a curved incision carried over the posterior surface of the auricle, and the skin and subcutaneous tissue included by these incisions were dissected off. Two incisions nearly parallel to the former ones were then carried directly through the cartilage, and an elliptical piece of the latter, measuring $1\frac{1}{3}$ in. by $\frac{1}{8}$ in., was removed."

"The piece of excised skin was considerably larger than this. The edges



Fig. 2. Front View of Deformed Auricle.

of the wound were then united by 10 sutures, of which 7 included only the skin, while 3 passed through both skin

and cartilage. Owing to the natural folds of the cartilage it was impossible to secure perfect coaptation on the anterior surface of the auricle, and a small space was here left to heal by granulation. The dressing consisted of ab-

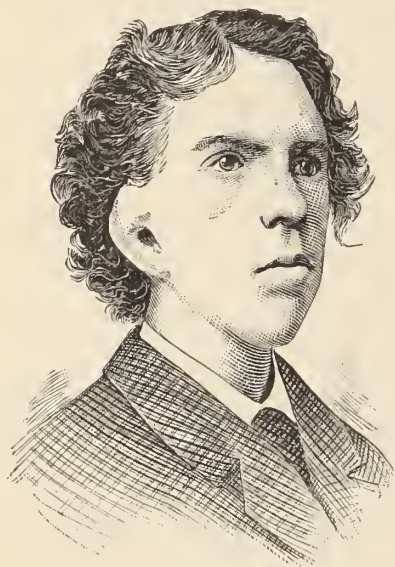


Fig 3. Auricle after Operation.

sorbent cotton and a bandage. Healing ensued without accident. There was no pain and very little swelling. The posterior incision united by first intention, and the anterior wound healed rapidly by granulation. The sutures were removed on the fourth day." In operating on the left ear, the auricle was held up so as to allow the light to shine through it, when it was transfixed with a scalpel, and a piece of cartilage and skin of the desired size and shape was removed. "Additional skin was removed from the posterior surface, until the wound seemed to correspond in extent to that made at the former operation." Twelve sutures were used, three of which passed through the cartilage, two in its anterior surface and one in its posterior surface. . . . healing promptly. The doctor preferred the first operation. He remarked that he did not know whether this was a new operation for such deformities or not, but that it was at least quite successful. To illustrate the readiness with which the cartilage of the auricle and meatus heal when wounded, I cite the following case (from

Dr. S. Moos, in the Arch. Otol., vol. 4, of a Prussian soldier who was struck by a bullet on the right auricle, which passed downward and inward and emerged on the left side of the lower jaw. When seen by the doctor, sixteen days later, there was only a small slit shaped wound of the lower wall of the cartilaginous meatus, three lines long by one and a-half in width, with little suppuration, showing that the cartilage was healing promptly.

Malformations of the auricle occur somewhat infrequently. In most instances these appear as supernumerary auricles, arrest of development of some portions of the auricle, or the auricle may be entirely absent. This arrest of development is frequently, though not always, accompanied by signs of imperfect development in other portions of the body. Schwartz, in his *Pathological Anatomy*, English translation by J. O. Green, states that "complete absence (of the auricle) from arrest of development may be found on one or both sides, but 'absence of certain parts (lobule, helix, antihelix, cartilage) and imperfect development of the auricle (microtia) of various kinds is much more common. Sometimes the auricle appears pressed together from above downwards, the cat's-ear, as seen in the old statues of Pan. . . . Sometimes (it appears) spindle shaped . . . and with deep indentations, or even with horizontal fissures. The tragus may be so turned inwards as to close the meatus." In one case he refers to, "only the fissured lobule was present, below which was the entrance into a meatus extremely contracted and directed upwards, the end of this meatus being closed . . . by the membrana tympani. Posteriorly from this rudimentary auricle the dislocated cartilage could be felt under the skin. The lobule is frequently adherent to the skin; the upper edge of the auricle is rarely so attached." Closure of the meatus externus, or complete absence, either with or without absence of the labyrinth, may sometimes accompany malformations of the auricle. "Rudimentary auricles are not usually inserted in the normal position. . . . well formed auricles *may* be dislocated on to the cheek, neck, or shoulder." "A by no means rare form of arrest of development is the fistula

auris congenita . . . which is to be regarded as a remnant of the first branchial cleft. The fistulous opening generally lies in front of the ear, usually one centimeter above the tragus, but sometimes it is in the lobule (Betz) From these openings a whitish-yellow, cream-like fluid exudes, which contains numerous pus cells On the same spot in the skin, in front of the meatus, very small cicatricial depressions are often seen, which are also referred to anomalies in the closure of the first branchial cleft. These fistulæ exist with or without malformation of the auricle; sometimes they are associated with fistulæ of the neck. Communication with the middle ear or pharynx could not be found in the cases which I have observed."

"*Excessive development* appears as . . . abnormal enlargement (of the auricle) complete or partial, (together with) auricular appendages (polyotia) which seem to duplicate certain parts of the auricular cartilage. Under the skin a misplaced bit of cartilage may be felt," (as in my own case). "These appendages according to Virchow, consist of skin subcutaneous cellular tissue, and reticular cartilage. . . . and are most common in front of the tragus but may be situated on the lobule or side of the neck." The form, size, position, and angle of insertion of the auricle is subject to very great individual variations. Irregularities in the formation of the helix are very common. Darwin assigns a so-called pointed ear (shaped somewhat like the one hefewith reported) *i.e.*, an ear with a sharply defined indentation of the helix, as is constantly seen in old statues of satyrs and centaurs, to the earliest orders of human beings." I have seen a considerable number of malformations of the auricle, where only a part of the auricle was developed, either with or without absence of cartilage. Minute rounded masses near the auricle, composed mostly of integument and connective tissue, with little or no fibro-cartilaginous substance, I have occasionally observed. A case of Polyotia was reported by Dr. H. Knapp in the Trans. Amer. Otol. Soc., 1879, in a man æt. 40. Both auricles normal. In front of the right ear was a cutaneous appendix, somewhat resembling an auricle. It was

located three m. m. in front of the base of the tragus, its long diameter being placed vertically. Its concave surface looked backward, giving it the appearance of an auricle inverted, with the wrong side in front. It had the appearance of a puckered-up piece of skin, but on being drawn out resembled an auricle of about one-third the normal size; cartilage in the upper and middle portions but not in the lower, caused it to thoroughly resemble a true auricle. This deformity was congenital. The whole mass was removed, and the resulting wound in the skin closed by sutures. There was no suppuration. There was also a congenital dermoid tumor on the outer sclero-corneal region of the left eye, which was removed. It contained hairs, sebaceous glands, connective tissue and epithelium. He states that these tumors are "considered as duplicate organs, namely, as a fourth eyelid."

In the Amer. Jour. Otol., vol. iii., p. 3, are three cases of microtia by David Hunt, M.D. In case i. I. W., æt. 28, "the auricle is represented by an irregular fold of skin; the parts corresponding to the helix, scaphoid fossa and antihelix are folded forward; no trace of the divisions of the auricle are seen; about midway between the superior and inferior extremities of the malformed auricle a pronounced indentation extends into its base."

Case ii., J. M. C., a child, similar to case i.

In case iii., F. G., an infant, the auricle is divided into a superior and inferior portion similar to those in cases i. and ii. The lower portion looks like a hypertrophied lobule; the upper portion consists of two nearly concentric folds united at their posterior extremities; the upper border of the superior fold shades off into the common integument. The meatus was closed in every case—no other malformation.

A case of microtia is reported, also, in the same journal, vol. iii., p. 278, by W. H. Robb, M.D., of a boy æt. 8, being one of ten children born of German parents. No other child was deformed. Hearing distance, 15 feet for ordinary spoken tones. The helix and lobule seem to stand straight out from the side of the head.

The length of the deformed auricle is

three and one half centimeters. An irregular, somewhat triangular shaped piece of cartilage occupies the extreme upper part of the auricle. This is much thicker than the normal, and very movable beneath the skin. Both auricles are nearly alike in appearance; no signs of a meatus externus; child has an idiotic look and a broad nose. A small opening near the apex of the left auricle seems to be a trace of the fossa of the helix. The right has a somewhat similar depression. The hearing seemed to be about the same in each ear, although it could not be very carefully tested. The child was said to be ordinarily bright, but some doubt of this was expressed by the observer. In the *Trans Amer. Otol. Soc.*, 1875, p. 81, Dr George Strawbridge, reports the case of a boy æt. 14, whose right external ear was represented by a fold of integument 22 m.m. long, and 16 m.m. wide, in which was a small portion of cartilage. A small rounded lower extremity seemed to represent a lobulus. In the center of the fold of integument was found a rudimentary meatus, ending in a cul-de-sac at a depth of 6 m.m. Above the main fold was a second smaller skin fold containing cartilage. The entire temporal and malar region was much flattened. Watch and tuning fork held in close contact with the ear could be heard. He refers also to another case where the meatus ended in a cul-de-sac. He quotes from Prof. Murray a case where both auricles were smaller than normal and imperfectly developed, with complete absence of the meatus, but without much impairment of hearing. Cassebohn reports the curious case of a child with four ears, two naturally placed, and two lower down on the neck; also there were two petrous portions to each temporal bone. He concludes by observing that, "operative effort to improve the condition of deformity has proved of little avail."

In a review in the *Amer. Jour. Otol.*, vol. iv., p. 150, two cases of malformed and supernumerary auricles are reported from J. H. Morgan, F.R.S. One was the case of a child, æt. 8 years, having a fissure-like prolongation of the mouth downward and backward into the left cheek, involving all its structures. The external meatus was larger outwardly

and placed more anteriorly than usual. The membrana tympani, with the ossicles, was believed to be natural. There were two so-called auricular appendages on the cheek between the tragus and the extremity of the fissure, one being directly below the other. A similar growth appeared on the right cheek. The meatus of this side was similar in appearance to the other, but less deformed. Hearing good; no hereditary history. In the second child, aged five, the left side of the face showed an almost identical condition. The mouth was prolonged into the cheek. On the right side of the face, there were two similar growths on the cheek, and the meatus was expanded outwards; malformation of the jaw less than in the other case. The child talked naturally, and had fairly good hearing in both ears. No history of hereditary malformation. Little difficulty was anticipated in performing a successful operation. In the *Trans. Amer. Otol. Soc.* for 1873, Dr. C. H. Burnett gives a resumé of much that was known on this subject at that time. He calls attention to a fact, noted by previous observers, that malformations of the external ear are found in the greatest number in connection with arrested development in the first branchial fissure, viz., with cleft palate and other forms of retarded development in the bones of the head and face. Meyer is quoted as disbelieving the theory of Virchow, that these changes are due to inflammatory processes during intra-uterine life, but believes the significance of the form and position of the external ear is purely of a physiognomical character. "In macrocephalic heads we find large, massive ears. . . . while the narrow ear, directed backwards, the so-called Faun's ear, accompanies a low, retreating forehead, sharp nose and narrow chin." "A comparative examination of normal male heads seems to indicate that the position of the ear possesses a certain and constant relation to the architecture of the skull."

"In women and children we often find, in connection with a large facial angle, obliquely placed ears, so that the upper part of the helix points backwards, and the posterior portion is directed downwards." . . . "Comparatively frequent

we find irregularities in the edge of the helix . . . which is rarely completely smooth . . . and slight irregularities of the concha, which may escape the eye but are detected by the sense of touch ; these are really signs of arrested development.

In the Arch. Otol., vol. x., p. 119, Dr. H. Knapp reports a case of bilateral rudimentary auricle with absence of the external auditory canal, with the remark that "rudimentary development with bony closure of the external meatus of one side is not uncommon, but we very seldom find this condition in both. In my own practice I have seen only one such case." This is as follows :—Mr. J. K., æt. 30, has a rudimentary auricle on both sides. "The auricle presents a curved, crook-like ridge of skin, which in the upper curved half contains cartilage . . . the lower half being composed only of skin. Behind this auricle there is a flat, round depression, half an inch in diameter, bordered posteriorly by a well-developed mastoid process. The fingers being placed in this depression, the movements of the jaw are felt as distinctly and in the same manner, as when placed in a normal meatus. The doctor inferred that this represented the site of the meatus. Thirteen years since a surgeon of Philadelphia attempted unsuccessfully to open this passage. No malformation of other parts. Eustachian tubes pervious. Hearing a very little improved by inflation of the tympanum. A loud voice is heard with some difficulty at five or six feet, and conversation is carried on somewhat laboriously. Musical sounds well heard. Apart from his ears he is a well-developed, healthy, and strong man, of average intellect and education."

In the Arch. Otol., vol. x., p. 55, is a case reported by Moos and Steinbrügge of malformation of the right auricle of a child, (girl) two days of age. Parents healthy and perfectly formed. The right auricle was so misshapen that only the lobule could be distinguished ; the upper half of the pinna was folded over the lower so as to resemble a cauliflower excrescence. On attempting to expand the part, the cartilage, by its elasticity, caused it to return to its former position ; no signs of a meatus. One or two shallow depressions took the place of fur-

rows and grooves of the normal auricle. This auricle was placed in front of and below the normal position upon the ascending ramus of the inferior maxilla ; the latter, including the entire half of the lower jaw was insufficiently developed, causing the lower half of the right cheek to appear flat, and resulting in a peculiar facial distortion. The child had general convulsions with cyanosis, on the eighth day of its age, and died three days after. The internal ear and the Eustachian tube was not examined. The meninges were full of blood. The oedematous brain *dissolved* when taken from the skull. This deformity resulted from malformation of the right temporal bone, and abnormal position of the glenoid fossa.

In the Arch. Otol., vol. ix., p. 169, Gardner Brown reports a case of malformation of the right ear, with abnormal position of the lower maxilla, in a girl three years of age. There was absence of the auricle, but near the tragus a narrow flip $1\frac{1}{4}$ inches long presented appearance of a rudimentary auricle. The meatus was closed by soft parts, but beneath these an opening could be felt. The right cheek was flattened and the symphysis of the lower jaw was drawn one-eighth of an inch towards the right side, causing the incisors of the lower jaw to separate from those of the upper.

Heredity seems to have exerted no influence in the production of these deformities. In the above reported cases the malformation was found *on both sides* in nine cases, and *on one side only* in seven instances. Deformities occurred in the auricles and meatus alone in ten instances, and in six cases it was found associated with other signs of disturbed development.

The *healing of cartilage* occurred kindly in all cases, although evidences pointed to the fact of somewhat slower repair than in that of the soft parts.

The *hearing* seems generally to have been lowered, but never abolished, except in the somewhat rare instances of arrested development of the internal ear.

My thanks are due to Dr. Gage, of New York, for the case operated upon, together with notes of the same.

TREATMENT OF ACUTE ABSCESS.

By STEPHEN SMITH, M.D..

Professor of Clinical Surgery in the Medical Department of the University of New York, Surgeon to Bellevue Hospital, etc.

In many instances of the ordinary acute abscess, I have recently had excellent results in treating them for immediate cure. The following example illustrates the course pursued :

A man had an abscess on the external part of the thigh, resulting from a severe fall. There had been a high grade of inflammation, much suffering, and a temperature of 103° . At the time of the operation the temperature was 101 . There was fluctuation, but the pus was not very near the surface. The treatment was as follows : When the patient was fully under the influence of the anæsthetic, the parts were thoroughly washed with soap and water and a flesh brush, and then with a douche of corrosive sublimate solution 1 to 500. Then the abscess was opened with a knife, treated with a carbolic solution 1 to 30, the opening being of a size to admit the nozzle of a Davidson syringe. The depth of the abscess cavity was two inches. The pus was forced out by pressure, and when it ceased to flow the nozzle of the syringe, well disinfected, was introduced and the edges of the wound held firmly around it. The cavity was then distended to its fullest capacity, with corrosive sublimate solution, 1 to 5000, the amount of water injected being one pint. Withdrawing the syringe tube, the solution was forced out, with strong and gentle pressure. This injection, and hyperdistension was repeated three times, when the water flowed away quite undischored. An incision was then made down to the cavity of the abscess, its full length, the incision being six inches long. With tenacula the edges of the wound were held apart, and the entire cavity exposed. During this part of the operation the irrigation with the corrosive sublimate solution, 1 to 2,000, was continued. The internal surface of the abscess was covered with large granulations and shreds of broken down connective tissue. The process of cleansing the wound was next begun, with disinfected

hands and instruments. All the shreds of tissue were carefully dissected away, and then the granulations were gently scraped off with the curette, until a perfectly clean surface was everywhere apparent. Several small vessels were ligated with carbolized ligatures, and the whole surface of the cavity thoroughly irrigated. The wound was closed with the uninterrupted suture, except at the lower extremity, where a small opening was left for drainage, over which was placed a disinfected sponge to absorb the discharge. The external wound and adjacent skin were sprinkled with iodoform; folds of gauze, between which iodoform was sprinkled, were applied around the limb from below the knee to the hip; over these layers, a dressing of borated cotton was wrapped about the leg and thigh; and over this was applied a light plaster of Paris dressing, which completed the operation. On the following day the temperature had fallen to normal, and did not rise again to 100 . the pain entirely ceased ; the appetite returned ; sleep was sound and undisturbed. The patient stated that from his recovery from the anæsthetic he had felt entirely well. The dressing was removed on the eighth day. The wound was entirely closed, and though there was some thickening of the tissues involved in the injury, there was no tenderness. He could walk without pain or inconvenience, and there was a rapid subsidence of the swelling of the part.

It is safe to estimate that this man saved at least a month in time by the operation. What was saved in pain, impaired health, and possible dangerous sequelæ, cannot be estimated. I have operated for acute abscesses of the neck, back, groin, etc, in a similar manner, and have not failed of rapid and complete recovery without further symptoms.

This operation may be extended to furuncles and carbuncles when they have a local origin. The exciting cause is some small necrosed tissue. If this irritant is early and thoroughly removed, and the parts rendered aseptic, the disease will be arrested. Carbuncle of the face, the so-called malignant pustule, has long been treated, and generally the disease is arrested, by early incision, filling the wound with spirits of turpentine. The value of this treatment was supposed to

lie in the local suppuration induced, but it is more probable that the turpentine acted as an antiseptic. If the surgeon would go a step further, and not only make a free incision through the inflamed tissues, but carefully scrape off, as far as possible, all diseased structures, and render aseptic the surfaces of the wound by the remedies now found so efficient, the disease could doubtless be arrested in its incipient stage.

We are evidently on the eve of the adoption of measures for the *prevention* of this formation of pus in a great number of cases where hitherto the practice has been to encourage suppuration as the proper method of cure. Indeed, there is little doubt that the time is at hand when the very presence of pus in the practice of surgery will be evidence of the inefficient use of remedial measures.

CASE OF COMPOUND, COMMINUTED, DEPRESSED FRACTURE OF THE SKULL: OPERATION AND RECOVERY.

REMOVAL OF A PIECE OF NECROSED BONE OVER ONE YEAR SUBSEQUENTLY, FOLLOWED BY INFLAMMATION, A COPIOUS SEROUS DISCHARGE, AND RECOVERY.

REPORTED BY J. S. WIGHT, M.D.,

Professor of Operative and Clinical Surgery, at the Long Island College Hospital.

On the 16th August, 1882, Nellie M—, 9 years of age, fell from a second story window to the pavement, and struck on the anterior part of the left side of the head near the edge of the hair, causing an extensive skull-fracture, that was compound, comminuted, and depressed. She was conveyed to the Long Island College Hospital, on the day of the injury, in a condition of extreme shock. She was unconscious and had compression of the brain. Dr. G. H. Atkinson operated, removing loose pieces of bone, elevating depressed bone, wiping away some brain substance, and dressing the wound antiseptically. The treatment was very simple: the efforts of nature were gently assisted. This patient remained unconscious for about three weeks—the

transition from unconsciousness to consciousness being quite slow, so that one hardly knew when it began. The one thing I desire to note is this: from time to time after consciousness returned, I repeatedly and carefully questioned this little girl in regard to her fall, but never at any time did she show that she had the least recollection that she had ever fallen; her memory in regard to her injury was a complete blank; she was happily ignorant of how she had received her great calamity. And further, I have concluded, after much observation, that a patient who is very seriously injured, is mercifully unconscious of the calamity that has happened to him: he may be so injured that he will die, or will have a recovery to some extent after a long time. The concussion is so severe, that the brain can not engage in thought, and can not perform the act of recollection, even if it had something to recollect.

Now this patient left the hospital on the 16th October, 1882, very much improved; she had no especial disturbance of sensation and voluntary motion; the organs of speech operated well. But she had some impairment of sense, or rather, I might say, intelligence—a result that we might expect.

On the 21st of September, 1883, I removed with my fingers, from the scar on this patient's head, a piece of bone, the entire thickness of the skull, one inch in length and three-eighths of an inch in width, and dressed the opening antiseptically. The next day the patient had great pain in the head, especially in the back part, had a temperature of 102 degrees, pulse about 120 per minute, respirations 24, some nausea, and dilated pupils; on the second day after the removal of the piece of bone, a serous fluid began to flow from the opening, saturating the dressings and the pillow. Then the symptoms were relieved. In the meantime I gave five grains of the bromide of potassium every three hours. The diet was cold milk. The drink was Vichy water. The serous fluid continued to flow abundantly for about three weeks—as nearly as I could estimate, about three or four ounces per diem—and then slowly diminished from day to day, and finally, about the fifteenth of October, ceased altogether. This patient became

worse and worse, and for some three weeks, during the last part of October and first part of November, was not expected to live from day to day. On November 22, she much improved; she has regained some intelligence; she has some voluntary motion; she takes more nourishment; she is stronger, and desires to sit up. The inflammation of the brain and its membranes appears to be about gone, and the patient is on the road to recovery.

About the first week of December, the patient had for a few days a renewal of the serous discharge; she then gradually became convalescent, and is now able to sit up and walk around the room. And, so far as I can now judge, she will never be what she would have been, had she never been injured.

And now to the above very brief general report of an unusual and interesting case of head injury, I desire to append the following remarks: At the time the injury happened, the dura mater was lacerated and both layers of the arachnoid as well. There was laceration and contusion, as well as loss of brain-substance in that part of the brain whose cells are used in the higher intellectual operations, so that impairment of *sense* followed. At the same time, there had been no special disturbance of sensation and voluntary motion, since those parts of the brain-cortex that have to do with sensation and voluntary motion had not been materially damaged.

A scar about two and one-half inches in length externally had formed, which was simply membranous, containing no new bone, being ordinary scar-tissue. In the vicinity of this scar the surfaces of the arachnoid had no doubt formed adhesions, so that the arachnoid cavity did not remain open, but was still left a closed sac.

Now, in the meantime, after the bone fragment had been removed, as already noted, since there had been inflammation and ulceration of the peri-jacent parts, the sub-arachnoid space had again been opened, the points of adhesion having been absorbed, so that the fluid of this cavity, more abundant on account of the new irritation and inflammation, could be freely discharged; and so it happens, that we are able perhaps truly to explain why the abundant and long continued

discharge of serous fluid took place from the re-opened wound on the head of our little patient. And now, one suggestion more: The cavity of the arachnoid resembles the cavity of a large joint, and it may be that the recovery of the patient was due to some extent to the clinical fact of there being a free discharge and thus relieving the brain from pressure, just as we have seen a joint relieved after having been freely opened. I have seen this little girl several times playing in the street with other children during the last few weeks, appearing to be active and strong.

Selections from Journals.

Billroth on Panaritium.

Panaritium is the unfortunate designation of an acute inflammation of the finger that may attack as well the first as the second or third phalanx, and that has its seat in the subcutaneous cellular tissue, whence the name *panaritium subcutaneum*, or in the sheath of the tendons (*panaritium tendinosum*), or, lastly, in the bone (*panaritium ostale*). The disease may arise in consequence of crushing, or wounds, or most frequently from infection; it usually begins with pain, from the degree of severity of which a conclusion may be drawn as to the seat of the inflammation, for in those inflammations that have their origin in the bone the pains are so intense that the sufferers, as a rule, are disturbed in their rest. The swelling in the case of *panaritium ostale* is so slight that it bears no proportion to the agony endured. Such intense pain is produced by the retention of the pus beneath the periosteum. When it raises this up and escapes into the cellular tissue, the pain gradually diminishes. From the commencement of the affection until spontaneous rupture externally takes place, usually from twelve to fourteen days elapse; early incision is therefore a great relief to the patient. Incisions can be made even when the pain is most intense, the patient being narcosed, but the incision must, of course, reach down to the bone. The *ostitis* of the third phalanx generally ends in either total or partial necrosis of the bone. Three or

four weeks elapse before the bone is separated from its surroundings—from the tendons, the articular ligaments, or, in the case of partial necrosis, from the still living bone. During this period new bone is already developed by the raised-up periosteum, and even if the sequestrum capsule is not completely tubular, in the course of time the development of the new bone may still be considerable. If an incision has been made, examination with the probe must be resorted to from time to time—about once a week—to ascertain how much of the surface of the bone is free, and if found to be fairly freed from its surroundings, it should be seized with a strong pair of forceps and quickly removed. The wound will now close, but at the same time the formation of new bone will be limited, and, in consequence of contraction, to a certain extent only a rudimentary phalanx may be developed.

The finger will, of course, be always somewhat deformed; it generally becomes slightly clubbed. The incision is usually made by the side of a tendon; the tendon may already be necrosed, but it is not always so, and consequently it would not be proper to aid the occurrence of necrosis by incision. Spontaneous bursting most frequently takes place around the tip of the finger; there are cases, however, in which it takes place under the nail, or at the root of the nail. In such cases the pain is always intense, as the nail is only raised up gradually, and the process of elevation is extremely painful. In cases in which the matrix is affected in the process of perforation, the nail becomes necrosed. As far as the nail looks red, it has life in it, just like hair that remains in the cutis; when matter is collected under the nail it no longer looks red and translucent, but becomes dull, milky colored, and, later on, it becomes grayish black, a sign that the nail is already dead. Death of the matrix, however, is not always associated with death of the nail; this may occur, but the death of the nail-bed is not a necessary result of the process; the nail-bed may remain, and the nail may be formed anew. One thing remains—the inflamed nail-bed never retains so smooth a form as before; it becomes uneven, knotty,

and in consequence the nail is never developed with such beautiful smoothness, it remains uneven, and of a dull milky color. In the course of years this condition may improve a little, but it never becomes good. Various attempts have been made to restrict this uneven growth of the nail, by even compression, or by scraping, but the results are only transient; as the cause of the irregular growth is not removed, the matrix still remains uneven and lumpy. When the pus is originally formed in the subcutaneous cellular tissue, an opening soon appears in the skin, where, first, a vesicle forms, from the cuticle becoming raised up from the rete Malpighii. The *panaritium subcutaneum* has already found its way through by the fifth day, and by the twelfth the wound has generally healed. There are also cases of *panaritium* in which no pus is formed, but in which complete spontaneous gangrene of the tissues takes place. How is this gangrene to be explained? In inflammation, gangrene may arise through two causes:—(1) The inflammatory process may from the first be so intense that the structure immediately dies; and (2) clotting of the blood may take place, and gangrene, in consequence of the arrest of the circulation. This last possibility we cannot accept in the case of *panaritium*, for how could such a disturbance of circulation as leads to gangrene take place so suddenly? I have already mentioned to you that the circulation in the fingers is so active that a finger may be completely cut off, except a thin bridge of skin, and the separated part may grow on again, the circulation being carried on through the bridge of skin only.

I think gangrene would take place here from the first cause. The acute inflammation is a chemical process in the tissues which is associated with dilatation of the vessels with consequent exudation of serum, with increase of number of cells in the connective and fatty tissues, and with extravasation of white blood corpuscles, which come to light as pus. The most essential part of the affair, however, is the chemical process which changes, in a manner not yet understood, the inter-cellular substance and the vascular tissues. There are naturally different degrees, and these

degrees are manifested in such a way that the inflammatory change and the disturbance of nutrition are small in one case whilst in another they are extreme—indeed, the peculiar disturbance of nutrition may be so intense that the vitality of the tissues ceases. This cessation of vitality is principally of importance as regards the vascular tissues, for when once the walls of a vessel are dead—as held by Brücke—clotting of the blood readily takes place. At a temperature of 1 C. (33.9 F.) no freezing takes place, and the blood, as far as it alone is concerned, may still circulate, but at this temperature the tissues of the vessels die, and clotting then takes place in consequence of their death. The like is the case in various other processes—the first in order is the death of the tissues, and the stoppage of the circulation is secondary. When gangrene takes place through the action of liquid caustic alkies, we must look upon this in the same way as being the result of the destruction of the tissues. The conditions are similar in the case of certain animal poisons, particularly the poison of serpents, for we cannot suppose that such a disturbance of circulation is set up that gangrene follows by the mechanical injury from the teeth; it is probable that the poison itself acts chemically in such a way that it kills the tissues, and that, as a consequence of the death of these, stagnation of the blood supervenes.—*Medical Press and Circular*.

Dieulafoy on Transfusion of Blood in Bright's Disease.

M. Dieulafoy, whose instrument for transfusing blood we described in our last letter, has furnished some interesting data concerning transfusion of blood in Bright's disease and epistaxis. Three patients were submitted to this treatment; two appeared to be permanently cured; the third exhibited rapid amelioration, but eventually death ensued. The first patient was a man who had suffered for twenty-five years from violent attacks of epistaxis occurring once or twice each year. Every form of treatment, including hy-

podermic injections of ergot, sulphate of quinine, nasal injections of iced water, and plugging the nostrils, failed, and the patient's condition became serious; he was subject to fainting fits, almost reaching syncope. M. Dieulafoy proposed ligation of the external carotids. M. Hayem suggested tranfusion of blood. One hundred and twenty grammes (about $4\frac{1}{4}$ ounces) were injected into a vein of the arm. Hæmorrhage was immediately arrested; and, in fifteen days, the patient was in perfect health. In a patient suffering from Bright's disease, transfusion of 100 grammes of blood was followed by disappearance of dyspnoea after twenty-four hours. Fifteen days subsequently, the patient left the hospital, apparently cured. The third case, which ended fatally, was that of a female patient suffering from uræmia, which declared itself a year ago. She was put on the milk diet, and grew worse. One hundred and twenty-five grammes of blood were infused, and rapid improvement resulted. Three weeks afterwards, she took cold whilst walking in a garden; about a month afterwards, she had a miscarriage, but recovered in ten days. A few weeks later, all the serious symptoms returned; transfusion of blood was again practiced, producing rapid but transitory improvement. In a few days the patient died. M. Sevestre also tried transfusion of blood on a patient *in extremis* who was suffering from Bright's disease, supposed to arise from lead-poisoning; death followed in forty-eight hours. Bartles, in his treatise *On the Disease of the Urinary Organs*, speaks of transfusion of blood in Bright's disease, and chronicles a case cured by this treatment. M. Dujardin Beaumetz, at a recent meeting of the Société Médicale des Hôpitaux, urged that, in structural lesion or pernicious anæmia, transfusion of blood can only be of service when the patient has sustained a considerable loss of blood. M. Dieulafoy, on the contrary, considers that the advisability of treating the condition of dyscrasia by transfusion of blood is a question to be studied rather than denied. M. A. Robin suggests that experiments should be made to ascertain whether the simple injection or a ferment does not produce the same results as injecting blood.—*Brit. Med. Jour.*

Dolan on Defective Lactation, its Causes, and how far it may be influenced by Drugs.

Dr. Thomas M. Dolan says:—In some papers published in the *Practitioner* in 1881, I attempted to throw some light on the influence exercised by drugs on the milk of mothers and nurses, taking, at the same time, a general survey of the whole question of lactation.

It would be impossible, in a short paper, to enter into details of my experiments, I must, therefore, be content to lay before you the conclusions at which I arrived. This I do in the hope that they may be corrected, if they be proved wrong; and that the riper experience of others may throw additional light upon a subject which I deem to be even of national importance.

I shall formulate a number of general principles, as you will thus be in a better position to discuss my views.

1. All therapeutical agents intended to act on the mammary gland must first enter the blood, or be capable of stimulating the blood-supply in the mammary apparatus. This principle follows from what we know of the processes involved in the making of milk, and depends on the general principle that nutrition is dependent on blood-supply.

2. All the drugs derived from the families Liliaceæ, Cruciferæ, Solanaceæ, Umbelliferæ, etc., enter the blood and impregnate the milk, so that poisons in any of these classes must be administered with caution to the mother or nurse, least the nursling may be injured. I have furnished instances, as dill, aniseed and conium, to prove this.

3. There is no true galactagogue in the sense in which it is understood. The nearest approach to this is to be found in *jaborandi*; but this drug is not persistent in its action, as it only temporarily affects the mammary secretion.

4. There is an antigalactagogue, *belladonna*.

5. In inaction of the *mammæ*, the milk may be increased and influenced by medicines.

6. The salts of milk may be improved by the administration of medicines.

7. Various physiological actions—purgative, alterative, diuretic, etc.—may be

produced in the child by the administration of drugs to the mother.

8. If we are to expect any improvement in milk secreting power, both as to quantity and quality, we must look to diet and hygiene for the attainment of that object.

I shall next briefly summarise some of the causes why lactation is defective.

1. It may be defective from mechanical causes: (*a*) through non-development of the lactiferous tubes; (*b*) through non-development of the cæcal terminations of the ducts; (*c*) through non-perfection of epithelium. These are conditions which preclude treatment. It may also be defective from a plethoric state of the body; this is a condition strictly amenable to treatment. A carefully regulated diet, avoidance of stimulants, with milk as a leading article, plain but nutritious food, and the occasional administration of castor-oil, will soon remove the obstruction.

2. There is another condition—viz., torpor of the *mammæ*—when treatment will be beneficial. The inactivity of the secretory apparatus may be overcome by the application of the electric current several times daily, in succession, for fifteen to twenty minutes at a time, or by irritation of the nipple, warm poultices, and the breast-pump.

3. The commonest cause of defective lactation is *anæmia*. This anæmic condition is intimately associated with general degeneracy, so that the subject of defective lactation is only part of a more general question.

We cannot expect much benefit from the therapeutic influence of drugs upon a degenerate race of mothers. We must look deeper, and go back to the initial point from which the mischief springs. This is readily to be found in the departure from a sounder and more nutritious fare, in the neglect of hygienic rules, and violation of those great natural laws which bind all creation, by the men and women of the present generation. We have every indication of degeneration in our large towns and cities. They are derived from the numerous advertisements of the hundred and one patent foods for children, of restoratives and tonics for adults, of hair-restoring articles, of magnetic and electrical contrivances, of

mechanical supports specially devised for the use of the female sex. These advertisements and instruments are the superficial indications of degeneracy.

When we come to consider the food of the factory-operatives, we can readily understand why the milk-supply is defective. The operative artisan's or laborer's wife lives chiefly on slops, as weak tea and freshly baked cakes, by means of which her digestive functions are injured, and the power of assimilating better nitrogenized food is destroyed. Milk is seldom used, except to color tea; leguminous plants and other vegetables, except potatoes, are looked upon with contempt. You can tell by their teeth that their diet is defective; even the number of dentists in our large towns are an indication of this imperfection. When, added to such a diet, we have badly ventilated houses, impure air, we need not wonder at the anæmic, stunted appearance of a large number of women of this class, or at the large number who cannot suckle, or who produce milk which is not sufficient to maintain the life of their children, being deficient in nitrogenous or carbonaceous products. Their diet is barely sufficient to make an imperfect kind of bone, muscle, nervous structure, or blood, so that, when the blood has discharged its several missions, there is little left for any supplemental wave; and thus we find that menstruation is imperfectly carried out, that when conception takes place the fœtus is but badly nourished, and as a result we have many delicate children, many imbeciles and insane, and an appalling infant-mortality.

If any further evidence as to degeneracy be desirable, it is forthcoming. Every observer may note in the street and the workshop the general stoop of our town-population, their narrow, flattened chests, bent spines, unequal shoulders, and other evidences of defective diet and impaired nutrition. Dr. Roth has brought forward some very strong evidence on the progressive degeneration of the physique of the population in Great Britain. He tells us that, of 1,600 recruits, after having accepted the shilling, 400 were rejected because they suffered from eye-disease, small, malformed chest, curvature of

spine, varicose veins, varicocele, muscular tenuity, and other complaints. Of 5,567 boys, 4,410 were rejected; they were under standard of chest-width (Dr. Ord's reports.)

Dr. Ferguson has produced some evidence regarding the steady degeneracy of the factory-population, and of the yearly increasing number of children unfit for work. The result of Dr. Ferguson's, and subsequently Dr. Roberts's reports, may thus be summarized. 1. Factory-children have a disposition to flat feet, and to a relaxed state of the ligaments of the knee and elbow-joints. 2. They do not compare favorably with agricultural children. 3. They are short of stature; they produce the impression of having bones too old for their heads and ages. 4. They have a general disposition to knock-knees. 5. Many have "old scars in the neck," considered sequelæ of eruptive fevers. 6. In a large majority, the gums are red and spongy. 7. The development and condition of the teeth are very unsatisfactory: (*a*) they have a bad color; (*b*) a bad shape, and are irregular; (*c*) the crowns of the teeth are contracted, with serrated edges and deep perpendicular grooves, as if a file had been drawn across them; (*d*) caries exists very often, usually in one of these grooves. The state of the teeth proves some fault in the health, and inattention during the early stages of the development of the children.

The prevalence of deformities amongst young girls applying for work at a large manufactory is thus described by the proprietor of an establishment in Nelson street, Liverpool. "It is most distressing to stand at our counter on a Monday morning and see the number of little girls deformed in their persons by being employed in nursing. I can pick them out in a moment. One shoulder is lower than the other; the neck awry; shuffling, wobbling gait." That very observant traveler and philosopher, Taine, has left us a very unflattering but true description of what he observed in the men and women in large centers like London and Liverpool. He tells us that one type stands out the most truly English, the most striking to a foreigner; and that this may be observed amongst the business-men who come to

London by train. Their drawn features, pale faces, steady preoccupied eyes, contracted mouths, reveal that the men are worn out and hardened by too much work. This is especially visible in workmen, but is still more visible in workwomen of the lower orders. He says: "Many are thin and consumptive; their eyes hollow; their nose sharp; their skin streaked with red patches. They have suffered too much; have had too many children; have a washed-out, or oppressed, or submissive, or stoically impassive air. We feel that they have endured much, and can endure still more. Even in the middle and upper classes, this patience and sad hardening are frequent. We think, when we see them, of those poor beasts of burden deformed by the harness, which remain motionless under the falling rain, without thinking of shelter. Verily, the battle of life is harsher and more observable here than elsewhere; whoever gives way falls. Beneath the rigor of climate and competition, amidst the strife of industry, the weak perish or are degenerated....Hence those shameful quarters of London, Liverpool, all the great towns; those spectres in tatters, gloomy or drunk, who crowd the dram-shops, who fill the streets with their dirty linen and their rags hung out on ropes, who lie on a soot-heap amidst troops of young children; horrible shoals, whither descend all whom their wounded, idle, or feeble arms could not keep on the surface of the great stream. The chances of life are tragic here, and the punishment of improvidence cruel."

It is pleasant to turn from this gloomy and depressing description of one section of society to another class, viz., the agricultural. Women living in agricultural districts produce milk good in quantity and quality on a diet assimilating, to a certain extent, to that of the graminivora and herbivora. The country-bred mother lives on plain, homely fare; good well-baked bread, made from pure flour; good milk, vegetables in abundance, such as turnips, carrots, cauliflower, leguminous seeds, peas, beans, lentils; and she has thus vegetable fibrine, and albumen, starch and gluten, and salts in abundance, from which to elaborate the precious juice so important to her offspring. She has,

above all, plenty of fresh air and exercise. Though her fare is simple, you may see, by her appearance, that it is sufficient for the building-up of a healthy organism; her cheek is ruddy and brown, her muscles are developed and strong, her bones well knit and large, her size is proportionate, and she is not the stunted, pallid, weak, anæmic mother, familiar to those who practice in large towns. If you want a good indication as to her health, look at those great indices, the teeth, and you will find them, if not pearly and white, certainly perfect and sound.

Though on this plain fare she eats less than men under similar conditions, she has a reserve fund on which to draw, not only during the time of lactation, but for her menstrual periods, and for the purposes of conception, when an additional call is made upon her by the requirements of foetal life.

Meat rarely enters into her diet. We need not wonder at the result obtained by almost a strictly vegetable diet, if we remember what chemical research has told us about the constituents of vegetables.

We have here an illustration of how much can be done by diet, supplemented, it is true, by other agencies, a healthier and sounder mode of living, so that, better than any dependence on drugs to remedy defective lactation must be a reformation based upon conformity with those great laws upon which animated and inanimated nature thrives.

It is useless to point out an evil without suggesting a remedy; and, in view of the existing evil of defective lactation having its primary cause in fathers and mothers, I must point out the means of improving their condition.

There are indications that we are recognizing the condition of our working-classes, evidenced by the health-lectures freely and generously given to the people by members of our profession; by the opening of cookery-classes, and by the extension of physical education. An active sanitary crusade has begun, into which a number of earnest philanthropists have thrown their souls; so that we may look more hopefully to the future, especially as this is supplemented by a national system of mental and physical training.

: Physical education will do much. It aims at the root, by commencing with our young growing population, by proposing the teaching of the elementary principles of anatomy, physiology, and hygiene proper, in her schools, and by adding to this knowledge the physical exercise which will develop the muscular system of our boys and girls.

We may reasonably expect to hear, in the future, less about women who can not suckle their own children, or who yield such poor milk that the child does not thrive on it; less of infantile diarrhoea and marasmus, less of patent foods; for, when we have produced a higher physical development, the mother herself will be capable of nursing her offspring.

There is one great agency to which I look hopefully, as it is a practical method of counteracting the great evil, intemperance, so detrimental to our women. The coca-house movement should become a great factor in the elevation of our national character, and the improvement of the physical condition of our population. It must tend to promote habits of sobriety amongst the people, and must prevent some of the waste of wages at present diverted from proper food-supply, and hitherto expended upon alcoholic products.

If the programme be carried out in its integrity, the working classes, male and female, will have light, airy, cheerful rooms opened to them where they can obtain coffee, cocoa, tea, milk, soups, meat, vegetables, good dinners, at cheap though fairly remunerative prices. Thus, a certain amount of money will be spent upon true articles of food, the workwoman and female operatives will be able at a moment's notice to obtain some nourishing food to support them during their work, where previously they have resorted to the public-house for a stimulus. The ultimate advantages to be derived from placing at the convenience of our female laboring population refreshment-houses of this class must be of necessity an improvement in their moral condition.

The social revolution which in the metropolis has received a powerful impetus from the medical profession, and particularly from Mr. Ernest Hart, must ultimately be extended to all our large

towns and cities, where it should meet with equal support from members of the medical profession.

It will be asked, is lactation equally defective amongst the higher classes? Are they equally unable to suckle their children? Are they ignorant on the great subject of hygiene? Do their children suffer from the manifold evils which affect the lower strata of society? Setting aside the large number who will not leave the luxury of their lives, fashionable amusements and the rest, to perform that duty which every conscientious mother should fulfil, there is also a larger class who are not able to produce milk. This no doubt arises from a certain high pressure under which they live, from a highly artificial mode of life the product of modern civilization. Their diet is not conducive to produce healthy blood, and we find anæmia, hysteria, nervous disorders, insanity, as a result; so that not only are they unable to reproduce healthy structure for the waste going on in their own bodies, but they are still more unable to furnish a supplemented want of nutrition required by the demands of menstruation, conception, pregnancy, and lactation. Every London physician can pick from his note-book numerous cases of young ladies, who have no useful occupation or amusements, whose bodily health and moral nature are perverted by the atmosphere in which they live, and whose delicacy is systematically fostered by their own mothers: and who thus become totally unfit for the position of mothers. Every accoucheur can tell us of the infants produced, of the care which has to be bestowed to rear them; so that physical education must not be confined to the lower classes.

Amidst the highest and the lowest strata, there is a medium: the great middle class. It is amongst this class I find the best mothers, and the least amount of degeneracy. This stratum is, no doubt, the back-bone of the country, from which is produced both the physical and intellectual material from which our great men are derived. The homely life, the domestic virtues, of this class are great factors in a nation's welfare.

In accordance with the wise ordinance of nature, the female has been endowed

with highly complex organs, for the reproduction and nourishment of our race. Woman's mission, if special organs be any guide, must ever be regarded in its association with motherhood, as purpose seems thereby fulfilled.

For the complete accomplishment of maternity, important physiological changes, evolutional and nutritive, have to be undergone. Facts demonstrate that the forces tending to reproduction are weakened, that the reserve or supplementary materials from which the forces are drawn are not sufficient to meet the drain produced by pregnancy and lactation; or, in other words, that our feminine stock is not improving. Heredity steps in, and perpetuates or intensifies the evil; so that dangers to the race, affecting every stratum of it, are to be apprehended.

To be forewarned is to be forearmed; to recognise an evil is the first step to its removal. These observations will not be in vain if they lead to further discussion and ventilation of the great questions which, I believe, underlie the subject of suppressed or defective lactation in the women of our generation. These conclusions have been purely brought about by my attempt to estimate the therapeutical influence of drugs, during lactation, on either nurse or nursling.—*Brit Med. Jour.*

J. A. Mackenzie on Rupture of the Heart.

The case upon which the few remarks in this paper are based I met with in the practice of Mr. John Deighton of Cambridge, and I am indebted to that gentleman for permission to make use of the following facts.

J. V., aged 75, of Cambridge, whilst at dinner, appeared to strain very much in endeavoring to swallow a tough piece of meat; and, it being thought he was choking, a messenger was at once dispatched for a surgeon, but, before the arrival of medical aid, death had taken place, the patient, in fact, according to the statements of his friends, not living many seconds after he appeared to strain in swallowing. By order of the coroner for the borough of Cambridge, I made a *post mortem* examination of the body, at which Mr. Deighton was present. The

body presented a fairly well-nourished appearance. The mouth and upper parts of the air-passages were examined, but no trace of any foreign body could be discovered. The existence of a distinct and well-marked arcus senilis was noted. Upon opening the cavity of the thorax, we came upon the pericardium distended into a globular tumor, and presenting a bluish discoloration, as from something shining through the walls of the sac, rendered transparent by distension.

When the pericardium was opened, the cause of death at once became evident, for the great distension of the pericardial sac was due to the presence of an enormous clot, and a considerable quantity of serum. The clot was most accurately moulded upon the heart and commencement of the great blood-vessels. The clot and serum were carefully removed, when the rupture shown in the accompanying specimen revealed itself. The heart was pale and flabby, and presented all the appearances of fatty degeneration. There was no trace of any valvular disease, and, with the exception of one or two very small atheromatous patches, the large vessels were quite healthy. There was considerable atheroma, however, of the coronary arteries. The examination of the interior of the heart showed the existence of yellowish softened patches distributed at irregular intervals over its surface, and in the left ventricle, where the rupture had occurred, these extended deeply into its substance.

Microscopical examination of a section of one of these patches revealed extensive fatty degeneration; in fact, in a section taken from near the site of the rupture, all trace of muscular fibre had disappeared. The other viscera were examined and found to be healthy.

The comparatively small number of these cases that I had seen recorded, together with the improbability that, as a general practitioner, I should ever again have the opportunity of seeing *post mortem* so rare a lesion, induced me to make these rough notes at the time, and, since then, to embody in a short paper the following remarks on ruptures of the heart.

Leaving out altogether the question of direct wounds of the heart, I will speak

only of what have been classified as traumatic and spontaneous ruptures (of the heart); and, in order to be able clearly to refer my case to its proper class, it will be necessary briefly to draw attention to the causes, exciting and predisposing, and to the mechanism by which both kinds of ruptures are produced.

In the normal state, the resistance of the walls of the cardiac cavities is evidently much superior to the tension of the blood-current; but this relation, essential to the efficiency of the circulation and to the continuity of the heart-walls, may be disturbed in two ways.

1. Assuming the heart-walls to be sound, the tension of the blood-current is suddenly increased by some force acting from without, and the cardiac parieties, unable to withstand the shock, give way. This is the mechanism of the production of traumatic ruptures, which are found in practice to have been caused by some great violence which imposes a sudden restraint upon the respiration and circulation. A kick from a horse upon the chest, the passing of a wagon-wheel over the body, the falling of a heavy log of wood upon the chest, are recorded instances of the means by which the force indicated above has been applied.

2. Before the introduction of the use of the microscope, it was believed that spontaneous rupture could take place without previous alteration or degeneration of the heart-walls; but at the present time the occurrence of spontaneous rupture unassociated with any degenerative change is denied by all authorities. The mechanism of the production of spontaneous rupture differs from that of traumatic in this. In traumatic rupture it is the heightened tension of the blood-current induced by external violence which leads to the solution of continuity; whereas, in spontaneous rupture, the tension of the current remains the same, but the heart-walls, enfeebled by fatty or other degenerative change (brown atrophy), do not offer the normal resistance to the flow of blood, and rupture may take place in consequence of some effort in which the muscles of respiration, etc., are concerned.

The predisposing causes are fatty degeneration of the heart, brown atrophy,

disease of coronary arteries, syphilis, probably from the production of gummatous tumors in the heart-substance, and myocarditis, with its subsequent softening.

The exciting causes were very marked in some of the recorded cases; whilst in others there appears to have been a total absence of any circumstance which could be put down as an exciting cause. I have found the following exciting causes recorded:—Shock of a cold bath, fit of passion, efforts at defæcation, vomiting, epileptic fit, and, adding my own case, the effort put forth in swallowing a tough piece of meat.

The question of age seems to have an important bearing upon the causation, for I find that the mean age in a series of forty-eight observations was sixty-five years. The influence of sex does not appear to be very great, though as a matter of fact rupture has been ascertained to have occurred oftener in men than in women. The commonest seat of spontaneous rupture is the left ventricle; the right, upon which we generally find traumatic ruptures situated, appearing to be less liable to the spontaneous lesion.

From these facts regarding the causations and pathology of rupture of the heart, there does not seem to be much difficulty in classifying my case as one of spontaneous rupture of a heart, enfeebled by fatty degeneration and impairment of nutrition, consequent upon atheroma of the coronary arteries, and the advanced age of the subject. Unfortunately, there is not much opportunity in these cases for the exercise of diagnostic acumen, death nearly always taking place before the arrival of medical aid. If seen immediately, a case in which the rupture was not very extensive might be mistaken for angina pectoris. In short, the extreme rarity of these cases, and the rapidly fatal termination, precluding, as it does, any attempt at treatment, make them of more pathological interest than practical clinical importance. Medico-legally, traumatic rupture following a blow, or supposed blow, upon the chest, might be of interest.

In conclusion, I am of opinion that if there were more *post mortem* examinations, in cases of sudden death, we should

probably find that many of those cases vaguely called "heart-disease," would turn out to be rupture of the heart or of aneurisms. Apart from other considerations, I think it would be a great benefit to the medical profession, from an educational point of view, if coroners ordered more *post mortem* examinations; as these are, in the majority of instances, the only opportunities that a general practitioner has of renewing his acquaintance with anatomy; and, though it is only really medical anatomy, still an occasional renouveau of acquaintance with the exact relative positions of the viscera and large blood-vessels, not to mention the importance of being able to note morbid changes in these organs and their relations, cannot fail to give valuable help to men who have neither the time nor the opportunity for dissection.

As an instance, I may mention that in the town of Cambridge where I noticed that *post mortem* examinations in coroners' cases were very frequent, during a residence of about a year, I came across two most interesting cases amongst the six or eight which fell to my share. One of these is the subject of the present paper, and the other was sudden death following the bursting of a large aneurism of the arch of the aorta. Had there been no *post mortem* examination, in all probability both these cases would have been put down as death from "heart-disease."—*Brit. Med. Jour.*

Society Proceedings.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Etiology of Typhoid Fever.—At a stated meeting, held February 18th, Dr. E. G. Janeway read a paper on the above subject. He said that in rural districts and in institutions typhoid fever seemed not infrequently to spread by contagion, as person after person sickened with the disease; yet in not a few of these instances it could be shown that such contagion was not direct, but indirect. It could not but be admitted that very few cases would stand a rigorous examination and be capable of proving that the disease was spread by direct contact. In order to arrive at a

just conclusion in this matter an inquiry had been made at several hospitals receiving typhoid-fever patients, and the result was in the main negative. All claimed that no nurse or patient in the wards contracted the disease; but in one, some years ago, one of the physicians contracted typhoid fever while residing in the hospital, and in another a domestic sickened with the disease. The small number of cases occurring among those resident in hospitals treating typhoid-fever patients would, therefore, point towards failure of disinfection or to defect in the plumbing of the institution where such cases had occurred.

The principal source of typhoid fever in New York City was to be looked for in defective sanitary arrangements, permitting the entrance of the emanations of the sewers either to the air or to the drinking-water of which the patient made use. It was a great mistake, however, to suppose that invariably when sewer emanations gained entrance to a house, and even when the defects were very great, typhoid fever would appear. The writer had seen marked exceptions to such an idea, which, together with the susceptible character of those exposed, only proved that something more was necessary than ground saturated with water and sewage in order that typhoid fever should occur. In cases of typhoid it was not always easy to decide how the poison gained entrance to the system. If we supposed that germs were floating in the air, the question must be raised, Do they occasion the disease by being received through respiration and taken into the lungs, or are they by this act simply drawn into the mouth and throat, and thence swallowed with the saliva, food, and drink, to develop in the alimentary canal? To the writer the latter method seemed the more probable. Any one who had examined much the sanitary defects in cases of typhoid fever would find that vitiation of water was in many cases possible, especially at the present time, when the water supply and water pressure were both defective in New York. The drawing of water on a lower floor caused a partial vacuum, which, if stop-cocks were open, or if tanks supplied by ball-floats, which

opened the pipe when the water was lowered, were employed, or if there were defective valves to pipes in water closets with direct supply, caused an aspiration of air into the water pipes of the house. The writer had traced outbreaks of typhoid fever in two institutions to sanitary defects of this nature and operating in this way. Having alluded to other sources of danger in connection with water pipes, he went on to say that a large number of privy vaults were still attached to the tenement houses in New York, and that there was but one form of these places which was devoid of danger, the school sink or trough closet. In such houses in a large city the question of the origin of cases of typhoid fever, with or without the germs from preëxisting cases of the disease, was as impossible of a just decision as in the case of defective sewage. That these privy vaults served to develop the poison of typhoid fever there was sufficient evidence, and the method of action might be in one of three directions: (1) by the use of the place (2) by the leakage from such place, causing saturation of the soil beneath a house, and (3) by the connection of the living rooms of a house with such places by waste pipes. For several years the Board of Health had refused to allow any new privy vaults to be constructed; but under the law the tenement-house owner had the option of a trough closet or some form of water closet, and the writer had feared that with the defective water supply and consequent deficient flushing of soil-pipes, an increase of typhoid fever might result from the introduction of water closets in the tenement houses on a large scale.

In the upper portion of the City of New York wells, with all the attendant liability of sewage-pollution, were still in use to a considerable extent, and the writer had been able to trace the outbreak of typhoid fever in an institution to use of such water, by the employment of the chloride of lithium test. In this connection Dr. Janeway gave an account of the outbreak of typhoid fever at Princeton College, in regard to which he had made a thorough investigation. The origin of the trouble was traced to a house within which there was a water-closet discharging into a

cess-pool with earth sides and bottom, in a shale soil, forty feet distant from a well, the water of which was found, on chemical analysis, to be seriously polluted. Afterwards the disease was ascertained beyond a doubt to have spread not by the drinking water, by the air, or by direct contact, but by means of the emanations from the sewer and cess-pool into which the passages from those sick with the fever had been thrown without disinfection. As regards the question of origin of this outbreak, whether spontaneous or from a previous case, the writer had been unable to come to a positive conclusion. Other avenues by which the disease might be introduced in a house, and of which the writer had seen possible, though not positive, illustrations, were, by means of refrigerators having direct sewer connections and by contaminated milk and food. He had been able to connect one outbreak in the upper districts of New York with affected milk, possibly diluted with water coming from a contaminated well, as in the cases reported from abroad, especially from England.

Dr. Janeway had reached the following conclusions with reference to the aetiology of typhoid fever:—

(1.) That it is in all probability due to a bacillus.

(2.) That this virus is certainly contained in the discharges from the bowels.

(3.) That it gains entrance to the system through the air coming from places into which the discharges of other typhoid-fever patients have been deposited, or through water contaminated by a similar process, or through milk diluted with contaminated water, or perhaps visited by contaminated air.

(4.) That there are instances which point to the probability that the germs which produce typhoid fever may develop in a suitable soil, but have not been derived from a preëxisting case of the disease.

(5.) That it is not necessary to invoke the aid of the rise and fall of the ground water to explain the disease; though a low state of the ground water, by favoring an increase of the impurities in a well or water-supply, may favor the spread of the disease, as may

also a sudden severe rain after a drought, by washing impurities, including the germ of the disease, into the drinking water.

(6.) That the failure of the disease to spread when prompt and thorough disinfection of the excreta has been performed, as well as of clothing soiled by such discharges, makes it extremely doubtful whether the disease is communicated by the respiration, perspiration, etc.

(7.) The writer has had no opportunity to study outbreaks of fever resembling typhoid, such as have occasionally been met with abroad, due to the eating of diseased meat.

The writer said that accompanying the paper were tables which would give in detail the number of deaths which had been ascribed in New York to each of a number of febrile diseases since 1852. In each of the last four years more deaths were ascribed to the malarial class of diseases than to typhoid fever; and this he thought was due to error in diagnosis, since in Bellevue Hospital 653 cases of malarial fever had been treated during the last three years, with a mortality of only three, or one death for each year. Among the fevers referred to, from 130 to 154 deaths in each year were reported as due to the hybrid, typho-malarial fever, and, as far as New York City was concerned, the writer regretted the employment of this term. It had led to confusion, and had also prevented those proper measures from being employed which would prevent the spread of typhoid fever and lead to an investigation of its causes. He had long insisted that the evidence of post-mortem examinations was opposed to the use of this term here, and he had known cases which clinically seemed, and were asserted to be, typical of this combination, which only presented the ordinary anatomical conditions of typhoid fever. The concluding part of the paper was devoted to a consideration of the relationship of age to the development of typhoid fever, and of the question whether the disease were increasing or not.—*Boston Medical and Surgical Journal*.

NEW YORK MEDICAL AND SURGICAL SOCIETY.

Dietetic Treatment of Pneumonia.—Dr. B. W. McCready said that he had been called about three weeks before to see a maiden lady, seventy years of age, who had previously been under his care. Dr. Hubbard had been called to see her at night, and had found her suffering very much from difficulty about the chest, and apparently dying. Dr. McCready arrived in the morning, and found the breathing near 50 a minute, the pulse 140, large mucous rales over the entire chest, and bronchial respiration at the root of the lungs. She expectorated with a great deal of difficulty. The sputa were of a blackish-brown color. She could not speak, and could scarcely swallow. Nourishment and stimulants were given as best they could be, and she continued to live for six days. Her sister, a slender, pale maiden lady of sixty years, came to nurse her, and was taken down in a similar manner and sent home. When Dr. McCready arrived she was breathing very rapidly, was not able to speak more than a word or so at a time, and had constant cough. There were large mucous rales over the entire chest. She received wine-whey and milk for nourishment. A slight amount of counter-irritation, as much as her delicate condition would permit, was made over the chest. On the third day a moderate bronchophony was detected at the summit of the left lung, along with some dullness. The mucous rale obscured the crepitant entirely. Scarcely any medicine was administered; she took a little more than a pint of milk in the twenty-four hours, together with two or three eggs, a small amount being administered every four hours. She lay between life and death for some time, but at the end of a week began to convalesce, and was now feeling quite well. Dr. McCready attributed recovery to the systematic way in which nutrition was kept up, and to good nursing. While certain of the ordinary signs of broncho-pneumonia were masked, it was evident that such was the form of disease from which the patient suffered. He believed that nourishment administered at intervals of two hours, as was often

done, was too frequent, as the stomach had not time to digest one meal before another was taken. He found that patients took milk better with a little carbonic-acid water than with lime-water.—*N. Y. Med. Jour.*

NEW YORK ACADEMY OF MEDICINE.

An Improved Method in the Treatment of Certain Forms of Skin Affections.—By Dr. P. A. Morrow. The method referred to, he said, was the application of medicinal substances by means of fixed adhesive dressings. Among these dressings were the application of drugs in combination with collodion and gutta-percha, and by means of gelatine, which could be rendered more pliable by the addition of glycerine, then painting a layer of the medicinal substance required over the part and covering it with a layer of collodion, and the incorporation of the drugs with adhesive plaster, the basis of which was gutta-percha. There was nothing of novelty to dermatologists in all this, but the method had only come into use within the last year or two, and since it was not alluded to in any of the text-books on diseases of the skin, he thought that it might be of interest to the profession at large to present it. He claimed nothing original in what he had to say, except so far as his own experience confirmed the observations of others, and his aim was simply to present, in a brief manner, the mode of preparation of the dressings alluded to, the conditions in which they were appropriate, their therapeutic value, and the clinical results which had been obtained by their use.

This method of making fixed adhesive applications, he believed, was undoubtedly a decided advance in the field of cutaneous therapeutics. The old modes of applying medicinal substances, while admirably adapted for their purposes in many respects, and still the best in a large number of cases, had certain disadvantages. Thus, when drugs were employed in the form of powder, the powder was easily rubbed off, and if applied over the exuding surface an irritating crust was very liable to be

formed; while lotions quickly evaporated. The ointment had, as a rule, always been the most efficient and convenient form in which to make applications to the skin; but this, too, was easily rubbed off, and was in a measure a cumbersome and uncleanly dressing. Dr. Morrow then quoted a passage from Erasmus Wilson in regard to the influence of fashion in cutaneous therapeutics. At one time there was a great outcry against the use of all sorts of unguents, and the water-dressing was unduly lauded. The ointment, however, survived the attacks made against it, and again came into general use; but still it would always be open to the objection of uncleanness, and of being offensive to the taste of the fastidious. Again, it was impossible to give ointments sufficient solidity to exclude the air, and by diffusing themselves over healthy skin in the vicinity of the lesions to which they were applied, they were very liable to propagate disease. At the same time, he did not mean to detract from the real and substantial efficiency of this kind of application, for which in many conditions no equally good substitute had as yet been found. The fixed dressing was not designed to revolutionize the treatment of skin disease, but simply to supplement the other methods in use, and its application was without doubt comparatively limited.

Dr. Morrow then went on to say that cutaneous pharmacy had not kept pace with that of internal medication, but of late much improvement in this respect had been noted. He then enumerated some of the drugs which, during the past few years, had gained repute in cutaneous therapeutics, such as chrysarobin, pyrogalllic acid, salicylic acid, iodoform, and naphthol. Some of these were very powerful agents, and it was necessary not only to be familiar with their properties, but to know how to use them. Chrysarobin was undoubtedly the most efficient remedy now at our command for the treatment of psoriasis, especially in chronic cases and those which had resisted other forms of treatment. Its range was limited, however, as it was contra-indicated in acute cases generally, in children, and in patients with tender and irritable skins; while if applied to the head it was apt to produce puffiness

of the face and eyelids and conjunctivitis. As ordinarily applied, it was very irritating to the surrounding skin, discolored the hair, and stained the clothing and everything with which it came in contact. So successful, however, was the effort to obviate these inconveniences and injurious effects by combining the remedy with collodion and gutta-percha—for which the credit was largely due to Dr. George H. Fox—that it led to the combination of a number of other drugs with the same class of substances, and to the establishment of fixed adhesive dressings as a recognized method of treatment in diseases of the skin. The medicated collodions had the advantage of being always ready for use, as well as perfectly cleanly. Pick, of Prague, was the first to make use of gelatine for the same purpose. Fifty parts of gelatine were dissolved in a hundred of water, and to this the medicament to be used was added. When the preparation was to be applied, it was first placed in a convenient vessel and dipped in hot water. This constituted an admirable and flexible dressing, and it could easily be removed by the application of hot water. Pick claimed that it had the advantage of being transparent, so that the lesion under treatment could be viewed through it. This transparency, however, Dr. Morrow had found a rather uncertain element, depending upon the drug which was combined with the glycerine. Unna, of Heidelberg, had modified Pick's gelatine dressing by adding to it five, ten, fifteen, or twenty per cent. of glycerine, according to circumstances. Dr. Mitchell, of Philadelphia, now manufactured gelatine plasters of various kinds, with which he had obtained very satisfactory results. The only objection that he had found to them was that they sometimes deteriorated by keeping; but he thought that this difficulty could probably be easily obviated by the addition to them of a small quantity of salicylic acid, or other antiseptic. Those which he at present was using were made by Messrs. Hays & Sons, of New York. Prof. Auspitz had devised a useful dressing which he designated *traumaticin*, It was a ten per cent. solution of refined gutta-percha dissolved in chloroform, and resembled the *the liquor guttae per-*

che of the United States Pharmacopœia. It was claimed for the traumaticin that it was a delicate, neutral, durable, and invariable dressing, which was more elastic than gutta-percha plaster. The latter was a decided improvement over the ordinary lead and resin plasters, and was of especial service in certain localized disorders affecting the hands and fingers, the crease of the thigh, the toes, the anus, etc.

Dr. Morrow next proceeded to speak of the verdict of clinical experience in regard to the new methods. In psoriasis, he said the result obtained by the use of chrysarobin in connection with them had proved eminently satisfactory. He spoke of the success achieved with it in the treatment of chronic eczema, prurigo, tubercular syphilis, and other affections by Auspitz, Benier, R. W. Taylor, and others. He also mentioned some of the results obtained, in Europe, with naphthol, salicylic acid, and other remedies, and said that iodoform collodion was used in immense quantities at Billroth's clinic. He then spoke of his own experience, and said that in psoriasis, as well as in chronic eczema with excessive pruritus, he had for the most part met with very satisfactory results with chrysarobin. In acute eczema he had been much pleased with the use of a gelatine dressing containing ten per cent. of oxide of zinc, and he related a case of chronic eczema of the face with extreme itching, in which a single application of this, with the addition of one per cent. of carbolic acid, gave complete and instant relief. Each form of application which had been mentioned, he said, had special advantages in certain cases and conditions, and he then gave a summary of the advantages of these methods somewhat as follows:

1. The complete protection of the part, and exclusion of air.
2. The securing of the direct action of the drug employed upon the parts affected.
3. The maintenance of a gentle and uniform compression.
4. Complete cleanliness.

The following general conclusions were reached by Dr. Morrow:

1. The adoption of the method of fixed adhesive applications marks a de-

cided advance in cutaneous therapeutics.

2. It is admirably adapted for certain special purposes.

3. It constitutes the most efficient means of treating hyperæmic conditions accompanied by epithelial aggregations, derangements of the capillary circulation in certain neurotic conditions, and in circumscribed lesions generally.—*Medical News*.

NEW YORK SURGICAL SOCIETY.

Dislocation of the Common Carotid Artery.—Dr. F. Lange presented a patient, a woman forty-seven years of age, who had been troubled with a disagreeable feeling in her throat for about nine months, which she described as a perpetual desire to swallow. She had been treated with internal remedies and external applications, and called at his office about a week ago, when he examined the throat and discovered, what could be readily seen on the posterior wall of the pharynx on the right side at the lower edge of the arcus pharyngo-palatinus, a roundish pulsating tumor. Closer examination showed that it was the common carotid artery, which was dislocated and could be traced by laryngoscopical examination as far down as the arytenoid cartilage.

There was also hypertrophy of the left ventricle, a decided thickening of the coats of the other carotid artery, which was abnormally superficial, and some albumen in the urine. The patient said that about nine years before she had an attack of acute nephritis. The question was, whether the trouble depended upon the anatomical abnormality, and had always existed, or only since the trouble in her throat had been manifested.

On the left side the soft parts were slightly prominent, and were sunk in on the right side. Dr. Lange thought the prominence on the left side was due to the superficial position of the common carotid artery. Moreover, the entire larynx seemed to him to be abnormally movable, especially so as on the right side one could pass the fingers behind the thyroid cartilage and pull the artery out, dislocate it laterally, and push the larynx well over to the opposite or left

side. He thought it probable that it was the common carotid and the beginning of the internal carotid which were dislocated. The artery seemed so movable beneath the mucous membrane of the pharynx that, by some pressure from the right side, it could be pushed almost as far as the middle line, passing from there upward and to the right side in a curved line.—*N. Y. Med. Jour.*

PHILA. COUNTY MEDICAL SOCIETY.

Nitro-Glycerine and the Chloride of Gold and Sodium in the treatment of Albuminuria.—Dr. Robert Bartholow said:—Hitherto the therapeutics of renal diseases have not advanced in the same ratio as our knowledge of their pathology. It cannot be said now that a cure has been found, but that two remedies of real value are available. My contribution to this symposium, on albuminuria, consists in an attempt to define the place which these remedies should occupy in a curative scheme. To do this, in even the briefest way, I must clear the ground with a preliminary statement.

I start with the proposition that those renal lesions united by the common symptoms—albuminuria—are of neural origin. There is a kinship between diabetes and Bright's disease. One of these is sometimes substituted for the other; and during the course of some rare cases of exophthalmic goitre this substitution occurs. Irritation of a certain part of the floor of the fourth ventricle is followed by glycosuria; of another part by albuminuria. The recent observations of Da Costa and Longstreth prove that a relation exists, whether casual or sequential, between certain renal lesions and degenerative changes in some ganglia of the abdominal sympathetic. The hypertrophy of the muscular coat of the arterioles, discovered by Dr. George Johnson, and the increased tension of the vascular system due to an irritation of the vaso-motor centre in the medulla, both present in the chronic forms of albuminuria, are further evidences of the agency of the nervous system. It was, more especially, the condition of elevated tension of the vessels which led

to the use of nitro-glycerine. This remedy before all else reduces the vascular tension. It also lessens the work of the heart by removing the inhibition exercised by the pneumogastric nerve.

This remedy appears to have been first used by Mr. Robson, an English surgeon, in cases of albuminuria, and by him employed, because the high tension of the vascular system has proved to be so pronounced an element in the more chronic cases. I have, myself, seen some remarkable instances of relief—indeed of cure—effected by it. If time were now available, I could give some striking examples. In cases of mitral disease accompanied by albuminuria it also renders the highest service—for the diminished peripheral tension lessens the work to be done by the heart, and assists in the more equal distribution of the blood. The effect of this in relieving the renal congestion is obvious.

Chloride of gold and sodium has quite another function. It has long been known that this remedy has a special direction to the genito-urinary apparatus. The ovarian and uterine organs in the female, the testes and vesiculæ seminales in the male, are stimulated by it, and the kidneys, by means of which it is eliminated, and in which it tends to accumulate, are decidedly affected by it in function and structure. In common with some other agents of the class to which gold belongs—for example, corrosive sublimate—the chloride acts on connective tissue and checks its over-production, or its hyperplasia. It would be quite impossible in this note to go over the evidence on these points, and hence I must ask your assent to these statements. They have been accepted as true of gold, from the days of the alchemists and iatro-chemists, as any one may ascertain from that curious collection of mediæval medical learning—the Anatomy of Melancholy. It has happened, strangely enough, that Hahnemann and his followers have profited by this knowledge, and have used gold preparations—especially *aurum potabile*—in the treatment of renal diseases with success.

How and when are these remedies to be used?

Nitro-glycerine is now administered, as all present know, in the form of the

centesimal solution—one minim of the pure drug to 100 minims of alcohol. The initial dose of this one per cent. solution is one minim, which should be increased until the very characteristic physiological effects are produced. The susceptibility to the action of nitro-glycerine varies greatly, and hence the dose cannot be stated in advance. It is necessary to produce some obvious effect. To maintain the same level of action, a slight increase in the dose may be required from time to time. As the effect is not lasting, the interval between the doses should not exceed three or four hours.

The administration of nitro-glycerine should begin in acute cases immediately after the subsidence of the acute symptoms. It is indicated in chronic cases at all periods, but is more especially useful, if given before hypertrophy of the muscular layer of the arterioles has taken place. When it acts favorably, the amount of albumen in the urine steadily diminishes. The mechanism of its action consists in the lowering of the pressure in the renal vessels. How far any curative effect proceeds from action of this remedy on the sympathetic system remains to be determined.

Chloride of gold and sodium is indicated in the subacute and chronic cases, especially the latter. The earlier it is given the better, if structural changes are to be prevented or arrested. The good effects to be expected from it will depend necessarily on the extent of the damage already inflicted on the kidneys.

The usual dose is one-twentieth grain, twice a day, but this may be much increased, if necessary. At the outset, one-tenth grain may be given; in a week the dose should be lowered to one-fifteenth grain, and after a month the regular dose of one-twentieth grain should be steadily pursued, with occasional intermissions. Indigestion, gastralgia and colic pains, nausea or diarrhœa, are occasionally caused by it; and if so, the quantity administered must be reduced. It is usually borne without any discomfort, but after prolonged administration, salivation, weakness, emaciation, trembling and other nervous phenomena may occur possibly. Such effects, however, are wanting in my experience.

The treatment of albuminuria by nitro-

glycerine and the chloride of gold and sodium does not necessitate the exclusion of other means—hygienic, climatic or dietetic. These remedies should, however, be given uncombined at different hours, and their actions should not be hindered or obscured by the effects of other agents given with like purpose. To this general statement there may be two exceptions: with nitro-glycerine, amyl nitrite or sodium nitrite may be given; with the gold and sodium chloride, corrosive sublimate may be combined. If doubts may be felt in regard to the propriety of depending on the utility of these remedies, they need not be long experienced, for if no good effects are observed in two weeks they may then be discontinued.—*Bost. Med. and Surg. Jour.*

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

On a Case of Spina Bifida, in a Woman, aged 27, Successfully Treated by Operation.—Mr. Walter Whitehead described this case. For the first twenty-one years of the patient's life, the tumor had been quiescent, and gave no serious discomfort; for the next, seven years, whilst she had been obliged to work hard, it grew larger, and the concomitant cerebral effects in 1883 had become distressing. She had severe headaches, with nausea and vomiting; attacks of vertigo; and transient loss of sight on pressure of the tumor, or even when she bent her body. She was admitted into the Manchester Royal Infirmary on July 11th, 1883. The tumor reached from three inches above the iliac crest to within an inch of the tip of the coccyx; its circumference was twenty-two inches: its transverse diameter fourteen inches. The skin was thin, the contained fluid transparent to an oxyhydrogen lamp. After five weeks' observation, the tumor was tapped, the diagnosis rendered certain by examination of the fluid; and, whilst the sac was flabby, the finger could detect, through the invaginated skin, a triangular opening into the spinal canal through the last lumbar vertebra. The evacuation of the tumor was followed by violent headache, vomiting and pain,

which were arrested by a seton in the neck. The tumor refilled, and gradual drainage was tried for seventeen days, by insertion, first of a horse-hair, and afterwards of a silver wire. The amount of fluid lost was very large, the tumor seeming to refill in forty-eight hours. The cerebral symptoms meanwhile grew alarming; and on October 21st, the actual cautery was freely applied to the entire surface of the tumor, which was then at once coated with chloroform. By October 23d, the alarming symptoms had gone. On November 3d, the entire tumor was laid open by a single incision from the top to the bottom; pus was evacuated, and the cavity loosely packed with iodoform gauze. It healed well, and, two months later, the cavity was completely obliterated, and no tenderness or discomfort left.—*Brit. Med. Jour.*

Miscellany.

Limbs of Unequal Length.—A writer in *Nature*, a member of the Royal College of Surgeons, mentions that, of seventy well authenticated skeletons he examined, the lower limbs were equal in length in only seven instances, the right limb being longer in twenty-five and the left limb in thirty-eight cases. It is claimed that this will have the effect, where persons walk without knowing the direction from their surroundings, to make their step longer with one limb than the other, and thus travel in a circle, as people so frequently do when they get lost. In most of the skeletons above referred to the right arm was longer than the left.

Typhoid Laryngitis.—In his dissertation published by Delahaye, Dr. Dérignac states that this complication may appear at the onset of the disease, or during its progress. There is generally some pain, often accompanied by deafness and swelling of the lymphatic glands of the neck. The mucous membrane is at first red, and interspersed with small grayish granulations, which soon disappear, leaving in their place superficial ulcers. These ulcers increase rapidly in size, and their surface presents a characteristic appearance, compared

by the author to that of gray granite. In some cases the inflammation gives rise to gangrene, retropharyngeal abscess, or necrosis of the laryngeal cartilages; but more often cicatrization takes place after a time. The local treatment should be the same as is known to be efficacious in other ulcerative diseases of the larynx and fauces.

Pulsating Empyema.—This interesting affection has been made the subject of a dissertation by Dr. Comby, who gives some additional information about it in the *Archives Générales de Médecine*, Nos. 11 and 12, 1883. A pulsating empyema presents the ordinary symptoms of chronic pleurisy, associated with visible and tangible pulsations which simulate those of an intrathoracic aneurism of the aorta. The pulsations may occupy a large surface, or a limited part of the thoracic wall; they are observed on the left side only, and appear one or two years after the pleurisy itself. Two conditions are necessary for their occurrence; first, the left lung must be indurated, and transformed into an almost solid fibro-elastic mass; then this fibro-elastic mass must be fixed by adhesions to the pericardium, but not retracted toward the vertebral column in the usual manner. These conditions were only found by Comby in phthisical patients, and the prognosis is of course very unfavorable. A pulsating empyema is liable to be mistaken for an aneurism of the aorta, but there is no expansion, no *bruit*, and no modification of the femoral pulse, while the existence of fluid in the pleural cavity is constant. Intrathoracic malignant growths, and Graves's pulsating pneumonia may also cause some difficulty, and must not be forgotten in the diagnosis.

General Paralysis.—M. Baillarger has published, in the *Union Médicale*, a paper on this subject, from which we quote the following conclusions. General paralysis is essentially a paralytic dementia. It may run its whole course without any exaltation of ideas, but there is a form of insanity, sometimes called paralytic insanity, which is characterised by ambitious or melancholic ideas, and by symptoms of muscular ataxy. This form may end in recovery, but more often it goes on gradually to simple or

paralytic dementia. Paralytic insanity is sometimes caused by a diffused periencephalitis, and in that case remissions are frequent; but the primary disease runs its course and ends, after a relatively short time, in simple or paralytic dementia.

The New York Druggists' Union has just perfected a system whereby they claim they will be enabled to keep the retail price of drugs and proprietary medicines at a figure which will allow the retailer a fair profit. Heretofore, it has been the habit of parties engaged in trading in classes of goods entirely foreign to the drug trade, to mark proprietary medicines much below ordinary figures, and at times, to place them below cost, as an inducement to purchasers to invest in their other wares. A large majority of the jobbers and retailers of this city and Brooklyn have entered into a compact with proprietors of remedies and wholesale dealers, whereby the latter agree not to sell to those who will not contract to keep retail prices at schedule figures. The druggists complain that great injustice has been done them, and that their interests have suffered material injury by the practices of the class of outsiders above mentioned, whom they designate "scalpers." This movement will be watched with interest by all having relations to this industry.

Calcification of the Pleura Costalis.—At the *post mortem* examination of a man who had died of cancer of the stomach, at the Hôpital St. Antoine, M. Gilbert found a thick plate of bone-like material covering the internal surface of the ribs on the right side, from the sternum to the vertebral column. This plate measured about 12 centimeters in height, and 20 in breadth. Its external surface was smooth, and separated from the ribs by connective tissue, while the internal was rough, and adherent in some places to the lung. Chemically, the plate had very nearly the same composition as bone, but the microscopical examination showed that it was only fibrous tissue loaded with the lime-salts.—*Brit. Med. Jour.*

Diabetic Pneumaturia.—A curious case of this rare affection, observed by

Dr. Guiard, is summed up in the *Journal de Medecine et Chirurgie Practiques* for 1883, Art. 12361. The chief symptom was the occasional escape of odorless gases through the urethra after micturition. There were no signs of a communication between the intestine and bladder, but the urine was acid, and contained sugar. The patient having been repeatedly catheterized before the apparition of the pneumaturia, it seems probable that an acid fermentation of diabetic urine had been set up, in consequence of the introduction of some germ-laden air.

Cider as a Preventative of Stone.

—M. Denis-Dumont has examined the statistics of the Caen Hospital, and found that in fifty-nine years only four cases of stone in the bladder were admitted. In one, the nucleus was a foreign body; and in two, the patients drank wine, and not cider, which is the ordinary beverage in Normandy. An inquiry made at Bayeux, Falaise, and in the departments of the Manche and Orne, showed that stone in the bladder was extremely rare where the use of cider was the rule. Meat being cheap and abundant in Normandy, the rarity of stone cannot be ascribed to the use of a food containing less nitrogenous substances than in other countries. The remarkable diuretic properties of the cider, which M. Denis-Dumont has found useful in gravel, obesity, and some forms of gastritis, are considered to afford an explanation of this remarkable freedom from calculus.—*Brit. Med. Jour.*

Sickness in the Jury-Room.—Some weeks ago we recorded an incident that was said to have happened in Philadelphia, the point of which was that a judge was made angry by the fact of a physician having been introduced into the jury-room on account of the illness of a juror. According to the *Boston Med. and Surgical Jour.*, a like incident took place in Massachusetts, and, on the strength of it, the defeated party in the action appealed to the Supreme Court. A small quantity of brandy was administered to the sick juror, but there was nothing to show, either that the spirit had in the least incapacitated him from doing his duty as a juror, or that the physician had entered into conversation with any

of the jurymen in a way calculated to prejudice the administration of justice. The appellate court held, therefore, that a new trial need not necessarily be granted.—*N. Y. Med. Jour.*

Medicine among the Primitive Irish.—In the *Dublin Jour. Med. Sci.*, January 1884, Dr. A. Macalister tells us that the primitive Irish did not, apparently, consider medical science as a branch of general culture; and from O'Flaherty we learn that in the University founded at Tara in the third century by Cormack MacArt, the schools were of military science, of history, and of law—none of medicine. In these, and even later in early Christian times, the physicians were a set of hereditary dependents attached to the leading septs or families. Thus the O'Hickeys were the physicians to the O'Briens of Thomond; the O'Lees to the O'Flahertys; the O'Shiels to the MacCoughlans and to the MacMahons of Oriel.—*Med. and Surg. Rep.*

"A Living Death."—A story has been going the round of the newspapers, which has been supposed to be "a singular instance of the inability of even medical men to distinguish between trance and actual death." As, however, it appears that no medical man was consulted on the point, the train of reasoning by which this conclusion was arrived at is not very evident. The case, however, is one of some interest, and we are enabled to give the following authoritative account of it. The patient was a young girl, aged 14, who first came under treatment two months ago; she was suffering from acute phthisis, complicated at the time by pleurisy and pneumonia; no unusual symptoms occurred until about a month later, when she was seized with convulsions of an epileptic character; these yielded to treatment in a few days. On January 8th, the assistant of the gentleman who had been attending her was met at the door by the patient's mother, with the statement that her daughter had suddenly died at about a quarter to four in the afternoon; he was told that she threw up her hands, stretched herself very stiffly, and ceased to breathe; her mother and two other neighbors came to the conclusion that she was dead, having failed to detect any

signs of life after watching her breathing and pulse. Two hours after her supposed death, the child was washed all over, bandaged, and carried upstairs (from the cellar-kitchen in which she had lain throughout her illness), and "laid out" on a coffin-board. At about 7 P. M., the mother and friends were startled by the cry "Mother" coming from the upper room, and the girl was found on the top of the stairs. Strangely enough, it would appear that she had not been rendered materially worse by this occurrence. She has since taken very little food, and frequently faints for a few minutes; her pulse is small and very slow (between fifty and sixty.) It is thought that the so-called trance was a prolonged fainting fit, which might have been much shortened had warmth and proper restoratives been applied.—*Brit. Med. Jour.*

Butterine vs. Butter.—There is a good deal of butterine made and sold in Europe, and there, as here, people seem to have little apprehension how extensively it is used. The *Farmer's Gazette*, of Dublin, publishes a statement showing how difficult it is for ordinary judges to tell butter from butterine. Some fine Normandy butter, costing 48 cents a pound, and a sample of butterine, bought of a local retailer for 22 cents a pound, were submitted to a jury of nineteen farmers, who tasted and examined both samples. Ten out of these nineteen judges declared the butterine to be the butter. The makers of butterine in this country use all the way from 60 to 85 parts of neutral lard to 40 and 15 parts of good butter, respectively, in making butterine. These are thoroughly mixed, salted, and colored a golden yellow, and the tubs are branded with fancy names as from country creameries.

It is said an infallible test is to melt the butterine and then suddenly chill it by surrounding it with cracked ice, when the lard goes to the bottom and the butter to the top, the line of separation being plainly visible.—*Sci. Amer.*

A Man with Three Testicles.—

Dr. H. H. Williams, of Johnstown, Pa., sends the history of the following unique case: "I was consulted a short time since by a young man, aged twenty years, with reference to a lump in his

scrotum, which he said had been there ever since he could remember, and that it had never given him any trouble, but that he was anxious to know concerning its nature. Upon examination I found what is evidently a third testicle. His scrotum is quite large and his normal testicles measure two and a fourth inches in their longest diameter, while anterior to the left one is a third testicle, half as large, freely movable, and having a distinct cord of its own. Upon squeezing this testicle he experiences precisely the same sensation as when the others are pressed. When he asked if this would in any way interfere with his getting married, I assured him it would not, but told him to look out for triplets."—*Medical Record.*

Female Physicians in Philadelphia.—

In consequence of the continued refusal of the Philadelphia County Medical Society to admit women physicians to membership, a society has been formed, under the name of the *Philadelphia Clinical Society*, which will give to the women practitioners of this county the opportunities of membership in an active organization. A meeting was held on Friday, January 25th, at the Hall of the College of Physicians. Officers were elected, and the work of organization was completed. It is the intention of those having the matter in hand to make the society an energetic one.

On the other hand, the opposition to the admission of women to the County Society appears to be losing nothing in force. An amendment to the By-Laws has been introduced, and will be acted on in April, which provides that the members of the Society shall be regular male physicians.—*Polyclinic.*

A Surgical Dictionary.—

Mr. Christopher Heath is preparing a Surgical Dictionary, to be published by Messrs. Smith, Elder & Co., of Waterloo-place. The work will not be illustrated.

Electropuncture in Aneurism of the Aorta.—

An interesting observation, by M. Dujardin-Beaumetz, is reported in the *Bull. Génér. de Thérap.* for January 15th. The patient, a man aged 37, had noticed two months before the operation, a swelling in front of the sternum. The tumor, when first seen by

the author, occupied the upper part of the thorax, on the left side of the sternum, and measured seven centimètres in breadth and five in height. The patient suffered very much from dyspnœa and cough. Iodide of potassium having remained without effect, an iron needle, communicating with the positive pole of a Trouvé's battery of eight cells, was introduced into the tumor, and the negative pole was placed on the left side of the thorax. The operation lasted ten minutes. Five days later, a considerable amelioration was noticed, and a second operation was then performed

with three needles. After some days, the operation was again repeated a third and fourth time. One month after the first operation, the patient felt very much relieved; the cough and dyspnœa had disappeared; the tumor was harder and smaller; and the pulsations were less distinct. Unfortunately, a fifth operation was performed five weeks after the first; but the next day the tumor was found soft, and increasing in size very rapidly. The patient died twelve days after the last operation, but no post-mortem examination could be made.

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THE ÆSCULAPIAN.

VOL. I.

APRIL, 1884.

No. 4.

Original Articles.

PRACTICAL SUGGESTIONS ON THE TREATMENT OF TALIPES-VARUS.

BY

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Orthopædic writers have usually divided this form of club foot into three classes. Holmes* describes these as follows :

"The *slightest* is that in which the position of the front of the foot when inverted is such that the angle formed by it with the inside of the leg is greater than a right angle, and in which the contraction is so moderate that the toes can easily be brought temporarily by the hand of the surgeon into a straight line with the leg, and the heel be depressed to the natural position.

The *second* class includes those in which the inversion of the foot and the elevation of the heel appear the same or little greater than those of the first class but in which no reasonable efforts of the surgeon's hands will temporarily extinguish the contraction and deformity.

The *third* class comprises those in which the contraction of the soft parts and displacement of hard parts, reaches the highest degree, so that the inner margin of the foot is situated at an acute angle with the inside of the leg—some times is even almost in contact with it."

The greater proportion of cases which come to the notice of the practitioner are of the lightest grade. The most severe grade as just stated comprises those "in which the contraction of the soft parts and displacement of the hard parts reaches the highest degree so that the inner margin of the foot is situated

at an acute angle with the inside of the leg—sometimes even in contact with it," but it is not chiefly for the management of these cases that this article is written, for comparatively few are now left so long unnoticed or untreated as to reach this condition. Still, when they do present themselves—the question of which method to pursue for the reduction of the deformity naturally arises.

The *most rapid* result is produced either by *Tenotomy*, the rules for which are laid down in all the text books upon the subject, and which for want of space will not be enumerated here, or the *Open Incision** of Dr. A. M. Phelps, of Chateaugy, N. Y., which seems to possess practical value, judging from the photographs of cases before and after the operation which he kindly forwarded ; or we may resort to *Brisme force* or *excision* of protruding parts. There exists among many, however, a strong aversion to the knife, and many patients will endure almost any amount of pain and discomfort rather than submit to its use, preferring to undergo a long and tedious gradual reduction of the deformity. This of course requires a longer time for its consummation than the operative procedures, but possesses the advantage in many cases of not weakening the muscles of the leg, and of being less liable to relapse.

A club foot of the severe grade we are considering can not be forced into a shoe, for the foot forms too acute an angle with the leg, and therefore none of the shoes or braces usually employed in the two lighter grades can be employed advantageously in the beginning. Our first step in the treatment must be to reduce the foot to a position in which an ordinary shoe, or a shoe provided especially, can be placed upon the foot and fitted without discomfort, and to affect this we are obliged to have recourse to splints. There are a number of these used by the profession whose

*Page 567. Vol. iii., 1862. A System of Surgery by Various Authors, Edited by Holmes.

(*Transactions Medical Society of the State of N. Y., for 1881.)

merit is acknowledged, and among these are the splints of Dr. Morton, of Philadelphia, and Bradford, of Boston.

Dr. James S. Green, in the N. Y. Medical Journal, Nov. 1881, describes a compound twister for the continuous extension and stretching of these cases. It is so constructed as to twist the anterior portion of the foot upon the posterior and also to "gradually and painlessly alter the relations of the foot to leg." For success in the manipulation of this splint it is necessary to have the attachment to the anterior part of the foot and to the leg, of adhesive plaster next the skin, this to be covered with a firm immovable dressing, such as plaster-of-Paris or silicate of soda, or flour paste in which is to be incorporated the terminal plates of the splint. When so attached the foot may be twisted with great ease, the splint affording facilities for constant poulticing of the protruding parts and for the application of lever force against them, but more than all, differing in this respect from many, it does not interdict the walking of the patient during the reduction. Of course such a splint would require a shoe of larger size for its concealment, but that is a matter which can safely be left to the patient.

The weight of the patient is utilized as a corrective agent by this twister, for it tends to constantly conserve its force so that when the patient steps upon the foot there is a tendency to press out the deformities.

Occasionally, however, a case will present itself which either from choice or necessity can not be provided with any of the splints mentioned and for such, a very simple method may be employed.

It consists in putting the patient to bed for from one to three weeks, according to the severity of the case, and covering the foot and ankle with poultices. The poultice can be made of any of the ordinary ingredients, slippery elm and marshmallow—equal parts—being a favorite preparation, and is to be of sufficient volume to swathe the parts completely; the patient being enjoined from taking any steps upon the foot during this stage of the treatment.

When the poulticing stage has passed, and in some cases it may be omitted,

although it is always of benefit to the extremity, the foot is to be kept in hot water for a short time, and then rubbed dry and taken in the hands of the surgeon who commences to *untwist* the foot. This must be done carefully and with due regard to the feelings of the patient and the interference with the circulation.

At the same time the foot should be *stretched* or pulled, both downward at the heel, and outward and forward at the medio-tarsal junction. Pushing to a moderate degree over the protruding tarsus should also be practised in conjunction with the stretching and untwisting, and it will surprise one to see the amount of the reduction sometimes effected at the first sitting. If this manipulation is continued for ten minutes or so, and swelling begins to make its appearance, place an iced cloth upon it or immerse in cool water for a quarter of an hour and it will disappear.

Then put the foot in as correct a position as possible and encircle it with a few thicknesses of plaster-of-Paris bandage, from the base of the toes almost to the knee, having previously cut some moleskin adhesive strips and applied them so as to hold the foot in good position.

The plaster enters the fur upon the back of the adhesive strips, and when it sets becomes incorporated with it to form a continuous and firm splint, but the foot must be held in good position by the surgeon or an assistant until this "setting" takes place.

At the end of a week, during which the patient may walk about, cut off the bandage, and after reducing the deformity still more with the hot bath, followed by the stretching, twisting and pushing, encase it in plaster for another week, and this may be repeated until the foot can be placed in a good position.

You will notice each time that you remove one of these dressings, that the foot has improved permanently, that it exhibits no tendency to relapse, and that you have retained each time, the improved position it took so much manipulation to produce the week before. It would seem as if the weight of the body upon the foot in its fixed dressing accomplished this result by balancing the contractile power of the

different sets of muscles in each successive position. It is a well-known feature of these deformities that the stretched and lengthened muscles, as opposed to the contracted and shortened ones, whether spastic or paralytic, lose power in proportion to the duration of their stretching and to the extent of the contraction of their opponents, and if by the gradual improvement gained in the relations of the foot, the ends of the stretched muscles are approximated and relaxed, they recover power if kept so for sufficient time, and are thus able to prevent any further tendency of the foot to relapse unless the original conditions which cause the deformity again supervene, or the weight of the body is borne upon the foot when not in correct relations with the leg. At any rate, the repetition of this process for a longer or shorter time is quite sure to bring the foot down to a position in which some of the shoes or braces for the lighter grades of the deformity can be utilized, and, as with the twister, without the patient's being obliged to refrain from walking or from pursuing ordinary avocations.

This light grade of the deformity which includes the two less severe types already described, together with those who have had the severer grade, but have been relieved by operation or mechanical means, presents certain mechanical conditions to be overcome by the surgeon.

We all know that such patients can not be let alone with the idea that time will remedy the deformity, and we do know that unless proper braces are worn there will be relapse or increased deformity.

In infancy, the treatment is comparatively simple, but in more advanced life it is changed very essentially to correspond to the increased mechanical power required. Among the several indications to be met, and perhaps the most important next to the restoration of the local relations of the foot itself, is abnormal *rotation*.

Patients with varus often present an abnormal relaxation of all the joints. This is a very marked feature and permits the flexors of the limb to exercise an undue influence upon the bones, rotating them inwards upon each other,

the foot upon the leg, the leg upon the thigh, and the thigh upon the pelvis, and so long as this rotation is not combated by proper forms of apparatus, it will not cease to be an agent for the increase of the deformity. It will, perhaps, aid us in the study of subject, to understand the construction and action of some of the braces in general use and what these braces will assist us to perform, for no brace, however perfect, will do its work satisfactorily unless controlled by a skillful hand, as it is simply a means to an end and bears nearly the same relation to orthopædic surgery, as does the knife to general surgery, an instrument for good or evil according to the skill with which it is used; but the limits of such a paper as this will not allow the discussion of the various braces.

It being understood that by operative procedure, twisting, the use of fixed dressings or other methods of reduction, the foot has been restored to a condition which renders it possible to be placed in a shoe, or the case is of such medium or light severity that the foot can be placed in a shoe without such preliminary treatment, we must next attach to the shoe an effective brace.

In the formation of a brace, we must bear in mind the necessity of rotating the foot outward before applying elastic force for the most complete reduction of the deformity. Whenever the *os calcis* is drawn upward and the *astragalus* projects, it is impossible to apply the upward elastic force advantageously until the foot is rotated outward, as the partial dislocation of itself prevents the normal degree of movement upward in the ankle joint. The foot should be taken in the hands and *everted* and after passing the median line *pronated*; and it will then be found that the deformity can be much more readily relieved. It therefore follows that a brace, to be effective, should contain provision for these movements, and afterward afford fixation in the corrected position while not interfering with the normal motion of the ankle. At the same time the twist of the anterior portion of the foot on the posterior should be overcome by the constant traction of rubber cord or webbing.

When any foot is everted and pro-

nated, it is in the position in which the origin and insertion of the Peronei muscles are most nearly approximated, and in this position the elastic force operates to best advantage in lifting and untwisting the anterior portion of the foot and stretching the posterior muscles.

Therefore there should be provision for eversion and pronation in a club-foot brace.

To avoid weight, one side-strip is used instead of two—and is placed externally—is articulated opposite the ankle—is riveted to the shoe beneath the arch, or to a metal insole if concealment be desired, and attached by two girths to the leg, one just below the knee and the other above the ankle, so that the muscular portion of the leg is not constricted or encumbered. (See Fig. 1.)



Fig. 1.

In order to fulfill the three indications already given, the single side-strip just described is to be fitted with two clamps and an elastic strap. These clamps are shown in Fig. 2, and admit fixation at

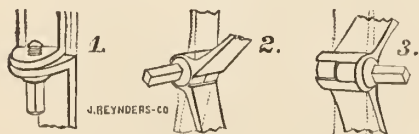


Fig. 2.

any angle or free motion. In this case we use them for fixation in preference to any other ratchet, both for symmetry

and ease of fabrication, the latter being an important item in the expense attending a brace. One clamp is to be placed just below the ankle for rotation (see Fig. 1), and allows that part of the brace below it to be thrown out and fixed at any angle with the part above; for when so fixed and the brace secured to the foot and leg, any inversion tendency is combatted by the entire brace, which thus acts as a powerful twisted spiral spring to keep the foot rotated outwardly.

The second or pronation clamp is to be placed where the side-strip passes under the sole or insole (see Fig. 1), and enables the surgeon to prevent any tendency of the foot to turn under, for if the side-strip be clamped by it at an angle of 45° outward from the leg, and then brought up against the leg and secured by the girths, the foot will be turned in its long axis so that the patient will walk on its inner instead of its outer side. This effect may be varied by the pronation clamp, so that the brace may be anything from a simple vertical support to an agent for the production of valgus, so completely does the clamp put the pronation of the foot under the control of the surgeon. The third and last indication is combatted by the use of elastic webbing provided with hooks, passing from an eyelet in the sole opposite the base of the little toe, to a point in the side-strip at about the lower girth. Rubber webbing is preferred to rubber cord or tubing on account of its durability, and because the tubing is apt to wear through over the ball of the foot.

We thus, by means of this brace, place the foot in a position to properly receive the weight of the body, and if it is so received, the weight becomes an agent for the permanent cure of the deformity, tending to press the foot into normal shape; but if, instead of being everted, the foot receives the weight while inverted, or in the median line, the deformity would be increased.

In many cases it is advisable to allow a limited range of lateral movement to the foot. This may be secured by having a loose rotary joint inserted in the side-strip just below the lower joint, and attaching a coiled spring to the side-strip (see Fig. 3) whose eversion power can be regulated by a cog and catch, so that

with a key it may be wound up to any degree of rotary power, thus combating the inversion by a constant elastic force

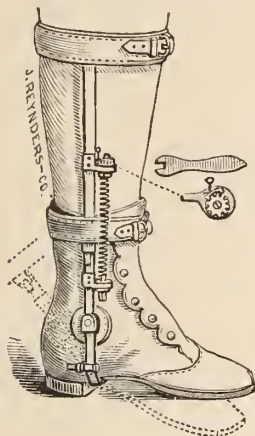


Fig. 3.

without diminishing the pronation or impairing support.

By either of these forms of apparatus the lesser grades of the deformity may

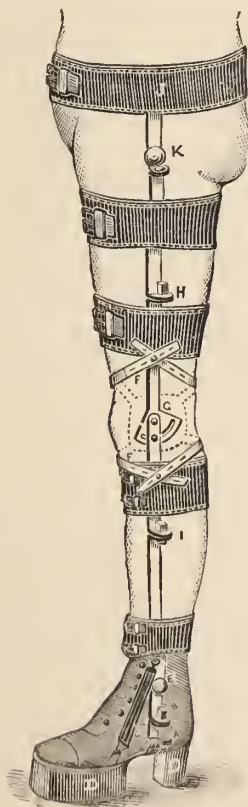


Fig. 4.

be successfully combated, and if the varus be accompanied with a shortened and atrophied limb, with outward relaxation at the knee, the compensatory curvature of the spine and the other indications are relieved and the knee supported laterally by the brace shown in Fig. 4, with the addition of a high shoe.

Besides the mechanical treatment of club foot, attention must be paid to the proper development of the muscles of the leg and frequent manipulation of the foot. Electro-massage is very valuable in these cases and is much assisted if care is taken to have the patient voluntarily exert the muscles at the time the electrical stimulus is communicated to them.

Florence House, New York.

THERAPEUSIS OF MERCURY.

BY

JAMES R. LEAMING, M. D.

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The physician needs powerful medicines to control disease; none the less because he believes in "vis medicatrix naturæ." We require of the surgeon that his knives be sharp and that he have skill to use them—that he should not use them on wrong or slight occasions. In the armamentarium of the physician there is no other agent having the powerfully sedative and at the same time the delicately alterative effects which belong to the different preparations and doses of mercury.

It has been said of the steam engine that its adaptativeness is universal. It can be made to engrave the delicate tracery of a seal, or to lift a man-of-war out of the water. We may say the same of electricity, its power is unlimited, its control and adaptativeness to nice results is marvelous. So also may we say of mercury. Yet there is no other remedy against which there is such a violently unreasoning, and unwise prejudice as against mercury. Especially against the most useful of all its preparations, the mild chloride, calomel.

How absurd would be popular prejudice against the steam engine or against electricity? Are they not pow-

erful for destruction of human life if misdirected? Yet they are our obedient servants for good under intelligent direction. So is calomel.

Calomel may be given in drachm doses, and save life where no other remedy can do it, and no harmful result follow. It may be given in one hundredth part of a grain doses with the nicest ascertainable effects. It simply needs to be wisely adapted to the necessities for its exhibition.

Pleuro-pneumonia as it has prevailed for twelve or fifteen years in New York is controllable in some cases only by the sedative action of calomel.

This agent is the shears that may clip the locks of the destructive Samson, and render it a mild disease amenable to simple nursing and gentle management.

Dr. Graves on large doses of calomel in acute inflammation, says, ("A System of Clinical Medicine, Dublin, 1843"). "The following remarks, derived from very extensive opportunities of observation apply not to the treatment of chronic diseases, not to that of inflammations, either slight in degree or occupying parts not essential to life, but to those violent attacks of inflammatory action which so often prove fatal in the course of a few days 'or even hours' by destroying the texture and function of vital organs.

If a person is seized, for example, with very acute pericarditis, how unavailing will be our best directed efforts unless they be seconded by a speedy mercurialization of the system. If, on the contrary, the practitioner defers the exhibition of calomel *or insufficiently uses it*, then will he have occasion to regret the consequences, and witness either the speedy death of his patient or his condemnation to the sufferings entailed on him by adhesions, valvular disease, and other sequelæ of badly-treated pericarditis."

I well remember my astonishment when, thirty years ago, the late Dr. G. P. Cammann ordered a large dose of calomel in an attack of intercurrent pneumonia in a case of chronic phthisis; and my gratification at seeing the disease successfully controlled thereby. It was, perhaps, the most practical of all the valuable lessons which I received from him.

Dr. Graves considered the speedy

mercurialization of the patient as necessary. He quotes "Dr. Johnson, in his classical work on the Diseases of Tropical Climates, says we ought to affect the constitution decidedly and as speedily as possible by means of calomel given, not in small doses often repeated, but in doses of a scruple, once or even twice daily."

But in the *sedative* action we do not contemplate *mercurialization* in the sense of ptyalism, or salivation. And if that should occur it is accidental and unnecessary, and is due to the unfortunate idiosyncrasy of the patient.

The admirable sedative effect of calomel when needed is best seen when it is placed dry upon the tongue of the patient; then, like the touch of the wand of the magician, it instantly changes the conditions of death to those of life. There is no absorption of the medicine, no exhausting purgation, no salivation.

The temperature at once begins to fall, the heart to gain strength, the plastic exudations upon vital organs to be reabsorbed, and the course of life again runs smoothly on. Of course it should not be given in any case where simpler means would answer.

We may say the same of any medicine. But some forms of inflammation of vital organs; of the brain, of the heart, of the lungs or kidneys, or some forms of dysentery or fevers, may be speedily fatal, if not arrested early in the attack. In that supreme moment there is no choice, there is but one remedy. If the physician hesitates then, or searches for other remedies in obedience to popular prejudice, the favorable moment may pass and the patient be lost. But even the accident of salivation is nothing, even when severe, in comparison with the death of the patient. Loss of teeth, or necrosis of the jaw, or cancrum oris, are not accidents of the use of the *sedative action of calomel*. Those follow only the abuse of the poisonous effect of calomel given in repeated smaller doses. There was a time when abuse of this powerful remedy was not uncommon. But such is not the case now. The accident of salivation which may occur when one or two large doses may be necessary is not destructive to tissues, bones or teeth. It is simply an annoying inconvenience.

The poisonous effect of mercury is not its sedative effect. Any one who has seen twenty, thirty, or even sixty grains of calomel placed on the tongue, at the right time, in a case requiring its use, cannot help being gratified at its beneficence and its power to save. It has no unpleasant effect, simply the patient gets well, and the change is so quiet and so complete that we feel doubt almost that there ever had been such danger.

When in the judgment of the physician the time has arrived for the use of this great remedy, it should not be delayed, and the dose should not be scrimped. The dose should be ample. Our fears of public prejudice make us cowardly, and we sometimes make the mistake of giving too little, and so may do harm. The small dose is dangerous. It may let the only successful time pass. It may have to be repeated, and the poisonous effect of mercury may take place. There is no danger in the largest dose when it is needed.

It is not absorbed. It acts upon the organic life of the body, and may strengthen the heart's action, lower the temperature, in a few minutes after being placed upon the tongue.

Small doses given in combination with opium, may be very serviceable. Calomel one-half a grain, with five grains of Dover's powder may be of decided benefit, given according to the needs of the case in progressive interpleural fibrination, or fibroid phthisis.

But the combination of calomel, tartar emetic, and nitrate of potash, mentioned by Dr. Rush in 1800, as the fever powder of Pa. Genl. Hosp., and which he used in treating successfully what he called consumption in the third stage, is admirable in fibroid phthisis of any stage.

This combination may be given with effect when the calomel may not exceed the one hundredth of a grain. In the Polyclinic Dispensary we have this combination ready in the form of tablets for convenience.

The strong tablets contain one-fifth of a grain of calomel, one-thirtieth of a grain of tartar emetic, and five grains of nitrate of potash. The tablet is made up with sugar, gum acacia and licorice.

The second in strength is just half the

amount of the first, and the third one-fourth. They are allowed to dissolve on the tongue.

Bichloride of mercury dissolved with muriate of ammonia, in Huxham's tincture of bark, is also a very serviceable combination, and may be given alternately with iodide of potash, as in syphilis. Fibroid phthisis is frequently the result of syphilis. But whether a given case is so or not the treatment is equally beneficent.

Mercurial inunction I have used more frequently formerly than at present. It is not so manageable and the dose is not so sure as when given by the mouth or on the tongue. But it can be used, as may also the mercurial vapor, in some cases with singular benefit.

FRACTURES OF THE MAXILLARY BONES.

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Fractures of the maxillæ, commonly the result of violence, may be either simple or complicated. The former a single fracture in the continuity of the bone, the latter where there is associated with the fracture external injury to the soft parts, blood vessels or teeth.

Fractures of the upper jaw are less frequent than those of the lower, and usually require little or no treatment. It often occurs that the same accident fractures both maxillæ.

Carefully removing any spiculæ that have become separated and replacing any fragments displaced will in a majority of cases be all that is required.

Should the fracture be severe, a splint of hard rubber may be employed and kept in place by a skull-cap attached to it.

Fractures of the lower jaw are of common occurrence and often require considerable skill in treatment.

Signs of fracture are, pain, crepitation, mobility, inability to speak, swallow or masticate by loss of harmony in articulation of the teeth.

In a single fracture beneath the masseters there will be but little displacement.

A double fracture anterior to the

masseters will be displaced downward and backward by the action of the genio-hyoid, genio-hypoglossus and digastric muscles.

If the bones be fractured at the neck, the body will be pulled forwards by the action of the external pterygoideus, and there will be pain.

A fracture at the ramus and through the line of the first bicuspid or canine, will be displaced upwards by the action of the masseters, forwards by the external pterygoideus, and inwards by the mylo-hyoideus.

Treatment of fracture of the inferior maxillary is best accomplished by a single intra-oral splint, (Fig. 1), of hard



Fig. 1.

rubber, embracing the teeth, with counter pressure by means of an extra-oral splint. When these are bound together they form a firm support for the jaw, (Fig. 2.) This is to be used where the



Fig. 2.

fracture is in the body of the bone. In fractures above the ramus a bandage will often suffice, or a double intra-oral splint, such a one as embraces the teeth of both jaws, with sufficient opening between the teeth to allow the patient to feed, the mouth closed upon it and held by a bandage. (Fig. 3.) In simple fractures a piece of gutta-percha answers



Fig. 3.

very well, by warming it and imbedding the teeth in it and applying a bandage. Fracture of the alveolus, sometimes involving a tooth or two, are quite common from tooth-extracting. They generally require only the removal of detached portions, being careful to save all the periosteum, and a thorough cleansing for a few days.

The application of the intra-oral splint consists in forcing all the teeth into their proper indentations in the splint.

When the fractured jaw is in normal position, strong muslin is now passed from the arm of one side of the splint, under the chin, to the arm on the opposite side. (Fig. 2. B.) The method of making these oral splints is as follows: Impressions of the upper and lower teeth and jaws are taken in plaster-of-Paris. From these impressions are made fac-simile models of the jaws. The fractured lower jaw model, with the displaced fragments, is then separated at the points of fracture and adjusted with the upper jaw in their former articulation. On this reconstructed model is to be made in wax or gutta-percha a model of the required splint. From the sides of this splint are attached metal arms that are to extend outside the mouth. This splint model is now to be reproduced in hard rubber.

Extra-oral or chin splints (Fig. 2. A.) may be made of gutta-percha, plaster-of-Paris or other material, or an impression of the chin can be taken in plaster and a hard rubber splint made. These latter splints are often found useful in multiple fractures with great displacement.

I have found the bandage as represented in Fig. 4 to be very effective, in that it has good control of the fractured

jaw and yet does not prevent the motion of the head on the neck.

A four-tailed bandage, 3 or 4 inches



Fig. 4.

wide and 24 inches long, is made of stout muslin.

The centre is placed on the chin, one part passing over the temples and fastened on the top of head, and the other passes in front of the ear and fastened over the occiput. Then these two are to be fastened together by a bandage on the top of the head and also to the bandage that passes around the head. Where there is a liability by strong muscular action to displacement of the splint, then use plaster-of-Paris bandage and a plaster chin splint.

The following is an interesting case of *fracture of the inferior maxillary* from a fall in an epileptic convulsion :

A. E. C., aged about 40 years, was referred to me by Dr. Joseph W. Howe. In an epileptic convulsion he fell and fractured the inferior maxillary on the left side at the second molar, and on the right side at the first molar. The patient was an exceedingly strong and well developed man.

The anterior depressor muscles displaced the jaw so as to bring the chin downward and backward and the

fractured ends of the bone against the sides of the tongue.

A double intra-oral splint (Fig. 3.) was made to embrace the teeth of both jaws. Under ether the splint was placed in position on the upper teeth, then with the patient's occiput against my chest and interlocking the fingers of both hands, took his chin in my palms and by considerable force brought the lower teeth into place in the under part of the splint. All went on well until a few days after he had another epileptic convulsion and by the spasmodic action of muscles displaced the fractured jaw. The jaw was again reset and a plaster-of-Paris bandage applied to the chin and over the head, which effectually prevented displacement by controlling the lateral and antero-posterior motion of the jaw, notwithstanding he had several convulsions before the jaw was sufficiently strong to take off the splint.

TRANSFUSION OF BLOOD IN PROFUSE PULMONARY HÆM- ORRHAGE.

BY

JOSEPH W. HOWE, M.D.,

Visiting Surgeon to Charity and St. Francis Hospitals.

In April of last year I was called to visit an old patient of mine in Richmond, Va., who was said to be in a dying condition from profuse and successive hæmorrhages from the lungs. I had treated the same patient twice before in New York for pleuro-pneumonia. The last attack occurred at the age of twenty, and two years prior to his visit to Richmond. This attack was not fully recovered from. Some small spots of consolidation remained together with numerous pleuritic adhesions. Six months subsequently the signs of catarrhal phthisis were very well marked. There was a distressing cough with profuse expectoration, which was often mixed with blood, night sweats and general loss of weight and strength. I sent him to the Adirondacks for the summer months, but he obtained very little benefit, and on his return home I advised a long sea voyage, which he took, remaining off and on at sea for

nearly twelve months. On his return to New York I found that most of the consolidation in the affected lung had disappeared, and the portion of lung covered by adhesions was expanding much better than is usually found under such circumstances. His cough troubled him scarcely any, and he had gained very much in health and strength, and gave every appearance of making a complete recovery. Still I advised his continued sojourn in a warm climate and absence from all work that might confine him indoors.

He took up his residence in Richmond, and spent most of his time outdoors on horseback. The animal he was accustomed to ride had a habit of occasionally rearing suddenly and throwing his rider. Three weeks before I visited him in Richmond this animal shied, reared and threw him, but did not fall on him, and he escaped with a few bruises. A few days afterwards he was thrown again; this time the horse fell on him, crushing him to the ground, sideways. He extricated himself with difficulty, and though no bones were broken, he was badly bruised and shaken up, and the old pain in the lung came back with some of its old severity, and he was compelled to go to bed. He got up again, however, feeling about as well as usual, and went with a cousin on a short trip into the country. While on this excursion he crossed a rapid stream in a rope ferry, and as the current was very strong he, with his relative, had to work hard to get the boat over. He felt very much fatigued, and the pain returned to the lung. The discomfort, however, soon wore off. On April 9th, Prof. McCaw, of Richmond, who, with Dr. White, was in attendance, writes: "On April 9th he was taken suddenly, while apparently in good health, with a profuse hæmorrhage from the lungs, which was estimated at two quarts. He was treated actively with ergot, digitalis and gallic acid internally, and with applications of ice externally. On April 10th he had rallied wonderfully, and there was little apparent damage done the lungs. On the 11th, without any apparent cause, the hæmorrhage returned, the amount being very profuse, and in a few moments he lost at least two quarts. On the 12th and 13th more hæmorrhages

occurred, but the quantity was much smaller."

I reached Richmond on Friday, the 13th, at noon, and found the patient rallying, though still in a state of collapse. The treatment previously ordered by Drs. McCaw and White, which had been attended with such good results before, was continued, and it was agreed not to resort to transfusion until every other hope had been abandoned. Though acquiescing in the delay, I was satisfied that there was no other chance left for the patient but transfusion.

During the afternoon of the same day the patient seemed to be stronger, and was able to swallow a little liquid nourishment. At seven o'clock, while at dinner, I was summoned with the announcement that another large hæmorrhage was taking place. I found the patient on his side with the blood pouring in large quantities from his mouth, with every expulsive expiratory effort. His pulse was not perceptible at the wrist, and it seemed as if he could not survive many minutes. When the bleeding ceased, and it was apparent to all that the patient was sinking rapidly, it was decided to perform the operation without any further delay. The cephalic vein in the right arm of the patient was accordingly opened, a ligature passed around it at the lower angle of the wound and tied, and the canula of Colin's instrument introduced and held in position by Dr. White. When this was done a solution of carbonate of ammonia (ten grains to the ounce) was poured into the basin of the instrument, which latter had been previously heated to the desired extent by immersion in warm water. The tube of exit was then attached to the canula in the patient's arm. A negro coachman in the family furnished the blood. The median basilic vein in his right arm was opened and the blood allowed to flow into the basin of the instrument and mix with the solution of warm water and ammonia. The injection was made very slowly and carefully, eight ounces of the liquid being injected in the course of ten minutes. An immediate change for the better was produced by the transfusion. Within two hours the patient's voice and consciousness returned, and the pulse became regular and compara-

tively strong. At 3 A.M. Saturday morning, five hours after the operation, he was able to speak in a strong voice, and in a calm and methodic manner settled all his affairs. He continued to improve during the day, and when I left for New York late in the afternoon strong hopes were entertained that if he did not have another hæmorrhage he might be restored to a comparative degree of good health. The change for the better continued until Monday, on which day his temperature rose, and signs of pneumonia appeared. The pneumonia spread rapidly, involving the whole lung, and brought about a fatal termination on Thursday following the transfusion. No bleeding whatever occurred after the operation. The addition of healthy blood to the torn blood-vessels of the pulmonary tissue evidently assisted in closing them, increased his strength, and gave to him a longer lease of life than it was possible for him to get under any other circumstances or from any other therapeutical agent, employed either as hemostatic or stimulant.

THE PHYSIOLOGICAL EFFECT OF NICOTINE AND TOBACCO.

BY

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Nicotine is one of the strongest poisons, and approaches very closely to prussic acid as regards the small doses which are sufficient to kill men and animals. Small living creatures, as birds, die from inhaling inappreciable small quantities that are evaporated from a drop held before the bill. Rabbits, cats, and dogs succumb to 0.005 grm., and men probably from scarcely greater quantities, as 0.003 grm. have produced serious symptoms of poisoning.

It is closely allied to the physostigmine group as regards the quality of its action.

Reception and Changes of Nicotine in the System.—Nicotine is absorbed through the unbroken skin (Roehrig); very rapidly through all the mucous

membranes, so that fatal doses may cause death in from 20 to 30 seconds after reception.

It is not decomposed in the body, but found again as such in all the organs (stomach, intestines, blood, liver, spleen, kidneys and brain) and in all the secretions (urine, saliva) (Dragendorff). It is also said to retard the decomposition of animals poisoned with it (Melsens).

General Symptoms. Restlessness is exhibited in frogs when the quantities are not too large; sometimes there is a cry of pain, which is soon followed by violent excitement, and an unconscious state succeeds after a little, during which severe clonic spasms occur then immobility, and afterward a highly characteristic condition of the feet; the fore feet pressed together as if in supplication or laid tightly along the body, the upper part of leg at a right angle to the longitudinal axis, the lower part of leg completely bent. This period, in which the head is drawn in as if "ducked," the pupils and the nictatory membranes no longer act on being irritated, and the voluntary movements and respiration stopped, is succeeded by fluttering muscular contractions, great diminution of reflex excitability on irritating the skin, then relaxation of the entire muscular system and general paralysis. The heart usually pulsates for some time after death.

In small warm-blooded animals, as birds, death ensues in a few moments, even with relatively small doses, owing to general paralysis. With somewhat smaller quantities there follow weakness, fluttering of the wings, tetanic stiffness of the legs, difficulty of respiration, and death.

Larger warm-blooded animals—dogs, cats, etc.—fall down paralyzed without any spasms, and die in 20 to 30 seconds after taking large fatal doses. When large, but not immediately fatal doses are given, they first utter cries of pain, but soon become unconscious, and then fall into severe convulsions in which tonic and clonic spasms alternately are continually repeated at short intervals until death ensues, either by suffocation from respiratory tetanus or from general paralysis. Even small and non-fatal doses will cause spasms, followed by excessive debility, so that the animal can-

not stand up, and recovery to health is very slow.

Even small doses of 0.001 to 0.003 grm. of nicotine have very toxic and lasting effects on men. Dworzak and Heinrich (under Schroff's direction) describe the symptoms as follows: First a burning sensation on the tongue; itching in the throat and flow of saliva; then headache, giddiness, drowsiness, indistinctness of sight and hearing; extraordinary sensation of weakness and fainting-fits; difficult and impeded respiration; pallor of countenance; distorted features; icy coldness of hands and feet; nausea; vomiting; eructations; violent desire to stool; trembling of the extremities and shaking of the whole body; clonic spasms, especially of the respiratory muscles, in consequence of which the breathing becomes difficult and impeded, every respiration consisting of short gusts in rapid succession, so that the air can only enter and escape from the lungs by fits and starts. This terrible condition lasted three full days and almost drove the daring experimenters to despair. Very large fatal doses act in an exactly similar manner as in the case of other warm-blooded animals.

Exceedingly small and harmless doses seem to increase the mental and physical powers and the reflex excitabilities; to lessen the appetite and stimulate the movements of the intestines. When small doses are begun with, the organism of animals also (rabbits, Anrep) can be accustomed to continually increasing ones. If, on the other hand, a large dose is given at once to frogs and rabbits, these will be affected quite differently during several days by repeated poisonings than are normal and non-poisoned animals, although they appear to fully recover after the first poisoning, and not to differ in any respect from normal animals; yet after a second dose of the same size some symptoms of poisoning appear that are always present in a first case; for instance, the fluttering muscular contractions and the spasms do not appear, but the stoppage of respiration, the loss of voluntary motion, and the general paralysis do. The second dose has, moreover, a greater effect on the heart in the case of frogs and on the respiratory center in warm-

blooded animals. The cause of this action is doubtless due to the fact that, despite the normal appearance of the animals, the organs more immediately affected by the nicotine have not yet quite recovered their normal condition, and that the heart of the frogs and the respiratory center of the rabbits have remained in a debilitated state, and that an additional dose increases the still present weakness; that the spasmodic center has also been weakened by the first dose, and that a second dose is no longer strong enough to excite it. If the second dose is three or four times larger than the first, spasms will again take place, but are not so strong as the first time (Anrep).

Action of Nicotine on Individual Organs.—From the foregoing observations it would seem that the action of nicotine, like that of the other alkaloids, is directly applied to the nerve-substance; at all events, the disturbances cannot be traced to changes in the blood. The dark red color of the blood is solely attributable to respiratory disturbances. If the blood-corpuscle is quickly decomposed when nicotine is directly mixed with the blood, this must be solely attributed to the strong alkalinity of the poison.

Brain.—That nicotine in very small doses facilitates the mental processes, disposes to intellectual work, and dispels the desire to sleep may be easily inferred from the effects of tobacco, although we have no direct evidence from infinitesimal doses of pure nicotine. In somewhat larger doses both warm and cold-blooded animals present in the beginning evident symptoms of excitability of the cerebral functions, which, however, are soon succeeded by contrary indications, brain-paralysis and unconsciousness.

Spinal Cord.—Freusberg justly maintains that small doses at first excite all parts of the spinal cord, and also more particularly the reflex communicating apparatus (contrary to the opinions of Rosenthal and Heubel). It must not be concluded from this, however, that when a frog is in tetanus it will not react any longer under irritation. The experiments of Freusberg on decapitated and dying frogs are especially interesting and important in this connection. After

they had lost all reflex action, twenty-four hours after decapitation, and only showed reaction by shutting the lids on irritation to the cornea, they could be so reanimated by injection of nicotine that an hour afterward an irritation to the skin was promptly answered by marked reflex motions. This reanimation of the spinal cord lasted from one to three days; when irritations were made at short intervals, it soon grew weaker, but recovered after a short time. The bodies of the nicotinized frogs preserved a natural appearance for a remarkably long time, and very light, medley-colored frogs acquired a dark shining skin. According to Anrep, the fluttering muscular contractions which are always observed in frogs when poisoned by nicotine are owing to a predominant central origin.

This excitability of the spinal cord increases to tonic and clonic spasms which continue or arise (according to circumstances) in the same peculiar way after decapitation (Freusberg), and which cannot be stopped by artificial respiration. This last fact, and its existence in cold-blooded animals, shows us that they are independent of circulatory disturbances (Uspensky).

This excitability is followed, more rapidly than in strychnine poisoning, by an insensibility of the spinal cord to direct and reflex irritation and by total paralysis.

The deportment of the peripheral nerves has been more minutely examined in cold-blooded animals. The intramuscular terminations of the motor nerves are first excited (hence the weak fluttering muscular contractions after separation from the spinal marrow), then paralyzed, while their roots long retain electro-motor qualities (Rosenthal). The contraction of the pupils which is always observed in nicotine cases seems to be caused by irritation of the motor oculi. The sensitive nerves are affected sooner, much more strongly, and for a longer time than the motor nerves (Anrep).

Direct muscular irritability is maintained for a long time. The fore-feet of frogs always sink into a cataleptic state, and become stiff and wax-like for 20 to 45 minutes; they afterward assume any desired position and maintain it until changed, and all this owing to a

change in the muscular substance itself (Anrep).

The respiration is excited at first, and becomes more frequent, panting, and hissing until there are tetanic inspiratory spasms and spasms of the glottis, even after the cervical *vagi* have been divided. It is finally retarded and paralyzed, very likely by the irritation and paralysis of the respiratory center in the medulla oblongata.

The *circulatory organs* are affected in the following way: The heart of the frog pulsates slower and slower after small doses (0.0001 gramme), and stops at length in diastole, owing to irritation of the contractile apparatus; after some time a second period follows, in which the contractile system is paralyzed, so that the heart begins to beat again regularly but somewhat more weakly. This second effect is therefore similar to that of atropine, with the single difference that with nicotine sinus-irritation is produced later; muscarine effects a stoppage of the heart-action, which is no longer possible in atropine poisoning. Truhart and Schmiedeberg conclude from this that the parts attacked by nicotine and atropine in the contractile apparatus cannot be the same, and assume that nicotine exerts its paralyzing action only over a hypothetical connecting part lying in the heart between the root of the vagus and the contractile nerve-centers proper, while atropine paralyzes the real contractile centers.

In warm-blooded animals the action of the heart is first retarded in consequence of the vagus irritation; then, when the vagi have been paralyzed, it is again accelerated, but then again retarded for the third and last time, when the excitability of the heart motor apparatus is lessened. The blood-pressure declines as long as the vagus excitement lasts, when it immediately rises, to sink again. The primary contraction and the later dilatation of the blood-vessels depend partly on the relative changes in the vasomotor center (Uspensky), and partly on the influence of the peripheric vascular nerves themselves (see Basch and Oser).

The surface temperature falls, and only incidentally rises during the spasms.

The Digestive Organs.—Small doses

increase the secretion of saliva by reflex action, and diminish the sensation of hunger, and strengthen and accelerate the movements of the bowels. If a minimum quantity be injected into the jugular vein, the intestines, from the stomach to the rectum, will be contracted, and especially the small intestine, to the entire or almost entire disappearance of their lumen. The intestinal gases and excrementitious matters are thrown rapidly towards the anus, and a kind of tetanus of the colon sets in that is not lessened either by dividing the vagus nor compressing the abdominal aorta, and in which the tri-splanchnic nerve cannot exert its contractile influence (Nasse). Coincidentally with this tetanus the intestines become pale. Then follows a period of rest, during which the vessels refill, and finally another violent peristaltic action occurs. The larger the dose the more rapid and intense will be this effect (Nasse, Basch and Oser). The intestinal tetanus is induced by violent excitement of the intestinal ganglia, the severe peristaltic motion by the irritation of an intestino-motor center situated in the medullary substance, as it appears after the aorta has been ligated and the poison injected only through the carotid to the brain and spinal cord (Basch).

The bladder and the womb are also said to show contractions (Nasse).

Nicotine itself is not used in medicine.

TOBACCO.

The use of tobacco as a means of giving enjoyment in the various ways of smoking, snuffing and chewing has spread almost over the whole world since 1560; a fact which would be impossible from a mere spirit of imitation, but rather to be referred to its physiological effects.

The principal effect of tobacco, whether in the form of snuff, chewing or smoking tobacco, must be certainly attributed to the volatile nicotine in the tobacco-leaves, and which we have just discussed at such length.

Still, perhaps, we must also take into account nicotianine, $C_{23}H_{32}N_2O_3$, an indifferent, bitter, and very volatile matter with a tobacco odor, and which when given in its purity causes sneezing, headache, nausea, and vomiting, but which

is probably nothing but a combination of nicotine with a volatile acid (Hermbstädt, Landerer, Buchner). A large series of very active matters which are developed only in preparing the tobacco, burning cigars, for instance, must also be taken into account.

The presence of nicotine in tobacco-smoke has been denied by Vohl and Eulenberg, but maintained by Heubel on the strength of more recent experiments. Pure nicotine is certainly decomposed at moderate temperatures, as in the simple process of steaming for drying; still the nicotine is actually present in tobacco-leaves as a stable salt, and it loses but little of its effectiveness by heat. However this may be, a quantity of volatile bases are developed during the smoking of tobacco, and all of them, with the exception of ammonia, are pyridine bases—viz.: pyridine, C_5H_5N ; picoline, C_6H_7N ; lutidine, C_7H_9N ; collidine, $C_8H_{11}N$,—all of which, according to Vohl and Eulenberg, are similar to nicotine, but weaker, and, like it, cause contraction of the pupil, spasms, etc. Besides hydrothionic acid, carbonic-acid gas, marsh gas, cyanic hydrogen, along with nitrogen and oxygen, have been found in tobacco-smoke in small and very variable quantities. The fact that very strong tobacco can be used for cigars which could scarcely be smoked in a pipe is explained by the presence of the highly volatile and narcotic pyridine in less complete combustion processes as in smoking a pipe, while in the combustion of good cigars with white ashes but little pyridine and more of the less active collidine are developed.

The physiological effects of smoking are dependent, therefore, on the above-mentioned ingredients of the smoke, and the juices that are absorbed when holding a cigar in the mouth, and which, of course, like the residue in the pipe, is far richer in nicotine and far more poisonous than the smoke.

The first attempts at smoking generally produce rather serious toxic symptoms, which are exactly the same as have been described by Dworzak and Heinrich of their personal experiments with nicotine. Soon, however, a person gradually becomes more habituated to it, and then those pleasant and useful

symptoms appear which so rapidly introduced and popularized this pleasure among mankind—a comfortable feeling of mind and greater zest and endurance for mental and physical labor. Especially with habitual smokers it is found that refraining from the indulgence disturbs the general tone of the system and diminishes their capacity for work. In the German army in active service the soldiers are very properly furnished with ample supplies of smoking-tobacco, because it has been observed that smoking enables men to endure severer fatigue upon smaller nutrition and with greater alacrity and cheerfulness. These results are to be attributed to the action of nicotine in very small quantities upon the brain and spinal cord.

The habit long continued, permits the use of large quantities; but in this direction there is a limit, and when this is passed the result is diminution of appetite, catarrh of the stomach, chronic catarrh of the throat and larynx, chronic conjunctivitis, and more rarely palpitation of the heart and *delirium cordis*, trembling of the limbs, hypochondria, and irritability. Hirschberg asserts that a kind of amblyopia is sometimes produced by tobacco; it takes the form of a specific, double disturbance of vision, a sharply defined paracentric scotoma, which covers the fixation-point, and thence spreads in an oval shape, which extends beyond Mariotte's spot; the scotoma for white is only a comparative, never an absolute; acuity of vision is reduced one-third to one-thirtieth of the normal; amaurosis never occurs; the appearance of the pupil is at first normal, afterward the maculous half is slightly discolored.

Few instances of death from smoking are known: a young man died after smoking his first two pipes; two young men, æt. 17 and 18 respectively, died after uninterrupted smoking.

Snuff, according to Schlösing, contains 2 per cent, according to Vohl and Eulenbergh only 0.03 to 0.06 per cent.; the variations are to be explained by the difference in the preparation and adulterations. From the usual manner of putting snuff into the nose generally local action only is produced: increased secretion of mucus, violent sneezing, dullness of smell, and, inasmuch as snuff

always enters the throat, œsophagus, and stomach, occasional catarrh thereof. Certainly if it entered directly into the stomach in considerable quantity, the symptoms of nicotine poisoning would obtain; in point of fact, death has been known to occur after the administration of 2 to 4 grms. in this manner.

The effects of chewing tobacco vary, whether the tobacco-leaves themselves, a cigar, for instance, or whether what is called chewing-tobacco is used. In the first instance serious symptoms result; the nicotine has been known to cause death after chewing half a cigar. Chewing-tobacco, so-called, is rendered much less dangerous by the mode of preparation and by the admixture of foreign innocuous vegetable matter; it chiefly tends to produce buccal and gastric catarrhs. We are unable to say whether the irresolution and want of mental clearness noticed in many tobacco-chewers is the effect of the habit or not.

Dietetic and Medicinal Uses of Tobacco.

—We have stated above the action of tobacco upon the nervous system which has caused it to be generally adopted as a means of indulgence. It is needless to say that it may be dispensed with; nor will we waste any words arguing with the opponents of tobacco about the æsthetics of chewing, snuffing, or even smoking. All that we insist upon is that every-day experience demonstrates that moderate quantities may be indulged in without injury; for with moderate use the symptoms of chronic poisoning present only in exceptional cases where there is some individual idiosyncrasy; otherwise such symptoms manifest themselves only in cases of excessive indulgence.

The conditions which forbid the use of tobacco now require consideration. Among them come, first of all, cases of acute and chronic catarrhal and inflammatory affections of the mouth and throat, and also, in our judgment, cases in which there is a tendency to dyspepsia and gastric catarrh. Next, smoking must be avoided in cases of conjunctivitis and other ocular inflammation, inasmuch, especially if it is carried on within a closed room, it may even cause catarrh of the *conjunctiva tunica*. The question of the relation of smoking to affections of the lungs has been very

much discussed. In our opinion catarrh is caused by it only in exceptional cases, and indirectly when chronic pharyngeal catarrh extends downward. Nevertheless, in all cases where the organs of respiration are affected, smoking must be prohibited, and for the peremptory reason that in all such cases provision must be made first of all, and under all circumstances, for a supply of good, pure air. Persons who have heart-disease must forthwith abandon the use of tobacco when they show any signs of palpitation—which, however, are not always manifested. We cannot here give a general opinion in regard to neuropathic cases.

The *therapeutic* value of tobacco is insignificant, and its use as such may be safely dispensed with.

Formerly it was most frequently used in cases of intussusception; at the present day tobacco injections have been pretty generally abandoned, for the reason that the result is uncertain, and because of the attendant danger of poisoning, which is apt to set in. It has been recommended also in cases of chronic constipation (without exact specification of varieties); as a matter of fact, with many persons smoking in the morning is followed by a regular stool—in any other form it would hardly be prescribed for constipation. Confirmation is wanting of the value of tobacco in cases of spasms of the glottis, *asthma bronchiale*, whooping-cough; the same is true with regard to nervous *singultus*.

Reviews.

The Hip and its Diseases, by V. P. Gibney, A.M., M. D., Professor of Orthopædic Surgery in the New York Polyclinic; Assistant Surgeon to the Hospital for the Ruptured and Crippled, etc. 8 vo. 412 pp. Price \$3.00.

This book, which is given as the result of thirteen years' experience in the various lesions of the hip occurring in one of the largest orthopædic institutions of this country, reflects much credit upon its author, whose advantages for the clinical study of these cases have been unsurpassed. As a result the book is

rich in clinical facts which can only be derived from the close observation and accurate record of many cases.

The author after giving a most instructive and valuable description of the anatomical relations of the joint—compiled from many sources and comprising many features not usually found in the text books—proceeds to consider the lesions of the joint in two divisions—those of the soft structures and of the bone itself. His first aim has been to contribute something toward the classification of diseases about the articulation and a perusal of the book discloses that all the lesions of the soft parts have been unusually, thoroughly and systematically considered.

Beginning with "Sprains and Contusions," he devotes chapters to the various neuroses;—Rheumatism; which is very justly awarded an important position; "Chronic Rheumatic Arthritis"; "Coxo-femoral Periarthritis"; "Bursitis," which is considered very fully, and "Acute Primary Synovitis." He also devotes chapters to "Acute Epiphysitis"; "Diastasis"; "Periostitis" and "Malignant Disease." The remainder, comprising more than half of the book is devoted to the consideration of Chronic Articular Ostitis and in Pathology, Etiology, Symptomatology and Diagnosis is very exhaustive and practical. In the treatment the author has attempted to place before his readers the comparative value of the various methods of treatment in vogue—classifying them according to the principles upon which they are founded. It is to be regretted in so large and well equipped an institution as that with which the author is connected that the treatment is limited to the "Expectant"—which is the name given by the author to what is usually known as the "let alone" plan—consisting in treating the exacerbations with rest, blisters and a spica-bandage, to the exclusion of all mechanical apparatus—and that the wards of the institution are not open to test the comparative merits of the various progressive mechanical methods which now promise so much. The author has however supplemented his lack of personal experience in the more modern methods, by excellent descriptions of each, and comments upon the results obtained upon cases which

have come under his own personal observation, in many instances through the instrumentality of the originators of the methods. He is of the opinion that "an intelligent use of the splint is but a very important part of a true expectant treatment." The book concludes with a chapter upon the operative treatment which is concise and brought up to the present advanced state of knowledge in this department—and, as a whole, the book is extremely commendable and is a valuable and exhaustive Treatise.

Its illustrations are sixty-four in number and are well chosen.

CHAS. F. STILLMAN, M.D.

Selections from Journals.

Marshall on Nerve-stretching for the Relief or Cure of Pain.

In the *Brit. Med. Jour.*, Dec. 1883, p. 1173, is published the Bradshaw Lecture delivered by Mr. Marshall at the Royal College of Surgeons. The subject chosen was the operation of nerve-stretching for the relief or cure of pain. The first thing insisted upon is that by nerve-stretching it must be understood that a nerve must not only be lifted out of its bed in the body, but that it must undergo a palpable stretching. A table is given showing the degree of extensibility of nerves. This extensibility is not very great; a nerve stretches more than a tendon, but much less than an artery. The longer the nerve, the greater is its elasticity, and the greater amount of stretching it will bear. A living nerve will stretch far more than one dead. Another point also shown was, that the recoil of a nerve after stretching is more marked in a living than in a dead nerve. The amount of weight which a nerve will bear before it breaks is very remarkable. A safe strain for a healthy sciatic nerve in man is 60 lbs.; if the nerve be diseased, 30 lbs. Diagrams are given representing microscopic sections of nerves, before and after stretching. These interesting observations were made by Mr. Horsley at the author's investigation. On examining longitudinal sections of nerves, it is seen that the epineurium in the unstretched specimen

is composed of wavy fibres like elastic tissue, and that the tubules lie loose in their sheaths; whereas in the stretched specimen the epineural fibres are found in perfectly straight lines, and the tubules are seen to be narrowed and stretched to an extraordinary degree. When transverse sections of an unstretched nerve are examined, the perineurium is seen loose around each fasciculus of nerve-tubules, and a space, probably lymphatic, exists between the perineurium and the fasciculus. On looking at a transverse section of a stretched nerve the epineurium is seen to be tightened, the fasciculi compressed, and the lymphatic space obliterated.

Next, the changes that take place in the nerve-tubules are considered. These consist in a segmentation of the soft medullary sheath; sometimes the nerve-tubule is ruptured, and more rarely the axis-cylinder itself gives way. Such changes in a living nerve are consequently followed by degenerations. The sheath becomes infiltrated and hyperæmic, the vessels compressed or twisted, and the whole mass of nerve becomes disintegrated and subject to soft atrophic changes. Then restorative changes follow.

The author next takes up the physiological results of nerve-stretching. The motor and sensory properties of the nerve are diminished, but the motor less markedly so than the sensory. The irritability of a nerve is increased by slight stretching, but by continuing the stretching this irritability is ultimately extinguished. The reflex properties are also greatly diminished, but not so suddenly as the voluntary motor or sensory functions. Coming to the question as to whether the mechanical effects of nerve-pulling are transmitted to the spinal cord or not, the author gives the results of experiments on stretching the sciatic nerves carried out by himself and Mr. Horsley, in the following words:—"We find the stretching effects passed to the sciatic plexus; we find it passing to the roots of the nerves, where it must disturb the spinal ganglia on the posterior roots, and it must disturb the dura mater. It may, by disturbing the dura mater, shake the cord a little through the ligamentum denticulatum on either side; but we find no change of tension in the intraspinal

or intrameningeal part of the nerve, and no movement in the cord."

With regard to the therapeutic results, the author relies on the access afforded to his hearers to the medical periodicals, and contents himself by giving some interesting tables published by Artaud and Gilson, and another by Nodet, adding a few cases which came under his own care and notice at University College Hospital (Vide *Medical Digest*, Section 1,242: 4). The remainder of the lecture is then confined to the modes in which nerve-stretching cures the pains of neuralgia and tabes. Speaking of neuralgic pains, the author considers that a large proportion of neuralgia are due to the *nervi nervorum*, which ramify in the nerve sheaths; these are ruptured when the nerve-trunk is stretched, much more readily than the tubules of the trunk itself, and thus the pain is often relieved.

Tabetic pains are associated evidently with changes in the posterior roots, and in the spinal cord, rather than with the changes in the nerves outside the dura mater. The benefit produced by stretching the nerve in such cases is supposed to be due to excitation of the vaso-motor or trophic centres in the ganglia, and the changes induced in the nerve-elements in consequence. The amount of stretching advised, is to use a pull of about thirty pounds on the nerve, and to make a steady pull, for five minutes at least. In cases of neuralgia the author also suggests that the nerve should be pulled upwards and downwards, but in cases of tabes it is essential to pull from the trunk or body, and of less consequence to stretch from the extremities.

It is not always necessary to cut down on the nerve to stretch it, for enough stretching of the sciatic may be produced by bending the thigh completely on to the body.

The dangers of the operation are comparatively slight, and the subject demands much further consideration.—*London Medical Record*.

Sormani on the Etiology, Pathogenesis, Treatment, and Prophylaxis of Pulmonary Tuberculosis.

Prof. Sormani contributes an important and interesting article to the *Annali*

Universali di Medecini, Sept. 1883, under the above title. The numerous observations now recorded in many countries confirm the importance of the discovery of Koch of the bacillus tuberculosis, in diagnosis and prognosis. The presence of the bacillus in the sputa, pus, and other secretions, and in the tissues and organs, is a certain indication of the tubercular process, and is sufficient to establish its diagnosis. The absence of the bacillus in the excretions, if repeatedly confirmed, with rare exceptions only, renders it certain that the affection is not tubercular. If the bacilli be abundant, long, sporogenous, and in groups, there is an active proliferation of the micro-organism, and the disease will probably run a severe and rapid course. For the microscopic examination of the bacilli the author prefers Ehrlich's method, modified by Weigert. A thin layer of sputum, spread on a cover glass, is dried over the flame of a spirit-lamp, and then immersed in the solution of gentian-violet (Weigert's formula; gentian-violet, 1.5 parts, dissolved in 15 parts of absolute alcohol, add 3 parts of oil of aniline, and dissolve in 100 parts of distilled water). It should remain in this solution for fifteen or twenty minutes, or longer; it is then rapidly passed into dilute nitric acid (50 per 100), then into alcohol, and then into a weak aqueous solution of vesuvine, and, lastly, well washed in absolute alcohol. The preparation may be mounted in oil of cloves, castor-oil or dammar varnish. Sections require three or four hours to take the color, and should generally be allowed to remain twenty-four hours.

Prof. Sormani has made many experiments on the inoculation of animals with tubercular matter. The results of these experiments are published in the *Rendiconti del R. Istituto Lombardo*, July, 1883. Inoculation with sputa containing bacilli gives rise to tuberculosis, which is developed more rapidly when the bacilli are abundant. The inoculated bacillus multiplies in the organism, and invades the lymphatic system, liver, spleen, and serous membranes; by its presence it sets up a chronic inflammatory process, with formation of products which become caseified, and subsequently soften, producing

gradual destruction of the organs. The bacillus is found in the centre of the tubercles in their earliest stage of formation, and hence is the cause and not the effect of the morbid process. The lymphatic vessels, amœboid cells, and the blood-current are the means by which these micro-organisms are transported from one organ to another and diffused throughout the body. Koch's discovery gives us a new indication as to treatment. It is reasonable to suppose that a substance may be found which, while innocuous to the individual and to the function of the diseased organ, may act on the bacillus or its substratum, and so arrest its proliferation.

Recent studies on the artificial culture of morbigenic germs and other micro-organisms, show that these organisms are very capricious, and that it is sufficient to modify very slightly the cultivating menstruum to arrest their proliferation. In the artificial cultivation of *aspergillus niger*, an infinitesimal trace of nitrate of silver renders impossible the vegetation of this microscopic fungus (Duclaux, *Ferments et Maladies*). The problem is to find some substance which, while harmless to the system at large, may yet prevent the growth of the tubercle-bacillus. Many antiseptics have been tried to this end. The fumes of sulphurous or nitrous acid are fatal to the bacillus, but are not respirable. Corrosive sublimate in a solution of 2 per 1,000 does not destroy the bacillus (Vallin).

Iodoform has been tried in many ways. The author gives it internally in the dose of 50 centigrammes daily, and by inhalation in the following manner. A Woulf's bottle with two necks is taken; into one neck is inserted a glass tube, which reaches nearly to the bottom of the bottle; into the other a short tube is placed, which is connected with an India-rubber tube, having at the other end a respiratory mask; to the longer tube is fastened a cylinder containing compressed air (Waldenburg's apparatus. *Die Pneumatische Behandlung*: Berlin, 1876). In the bottle is placed about 50 grammes of iodoform, previously finely powdered, with the addition of a little ether. When the apparatus is used, the compressed air passes through the Woulf's bottle, and

the strong current of air takes up a part of the iodoform and carries it into the lungs. To facilitate the volatilisation of the iodoform, the bottle may be placed in water and heated up to 100° (decomposition of the iodoform only takes place at 120°). The greater part of the iodoform inhaled is arrested in the bronchial tubes, but in animals some reaches the alveoli themselves. At first one only of Waldenburg's cylinders a day was used; the number was gradually increased to ten. The iodoform was never irritating; it was absorbed, and could be recognised in the urine by nitric acid and sulphide of carbon. After about a month of this treatment, the patients had notably improved; fever and night-sweat had disappeared; and the cough and expectorations were much diminished. In three months they had gained from 5 to 12 kilogrammes in weight, but the bacilli had not entirely disappeared from the expectoration. The great diminution of the expectoration, however, proved that the proliferation of the micro-organism was much less active. The local mischief was arrested; the vital capacity of the lung was rather diminished than increased; and this is in harmony with the fact that cicatrization is taking the place of the destructive process.

Koch's process to prepare the gelatine for the artificial cultivation of the bacilli takes a week or more. Dr. Sormani finds that it can be quite as well and much more quickly obtained by heating in a water-bath calf-serum previously filtered and rendered alkaline by the addition of crystallized carbonate of soda. His best cultivations were made with this gelatine in watch-glasses, soldered together with mastic and silicate of potash. Out of sixty attempts, in six only were developed the little grayish-white, sometimes yellowish, patches described by Koch; these patches contained very numerous oval spores, united in zooglœa, and immovable, of uniform size, the greatest diameter being one micro-millimètre. On the addition of a liquid the peripheral spores become detached, and acquire a vivacious oscillatory movement. Later appear very fine transparent oscillating bacteria, two to seven micro-millimètres long, or even more, articulated,

granular, and, like the spores, strongly coloring with gentian-violet. Among the spores and bacilli numerous crystals of chloride of sodium and carbonate of soda were visible. The uncertainty still existing as to the value of the spores and bacilli obtained as the products of cultivation, and the great tendency of these cultivations to fail, render it premature to decide on the efficacy of the various therapeutic agents from the negative results only obtained by artificial cultivation.

Dr. Sormani agrees with Marchiafava that the bacillus is not found in the breath of the phthisical. The bacillus is preserved unaltered in the expectoration for a very long time, and resists putrefaction and desiccation, and preserves its virulence. Tuberculosis is not directly contagious, but indirectly it is, by means of the dried powdered tubercular sputa which float about as dust in the air.

In the prophylaxis of tuberculosis, the prompt destruction of tubercular sputa, and the efficacious disinfection of the rooms and objects soiled by tubercular matter, must be chiefly insisted on.—*London Medical Record*.

Vulpian on Potassium Bichromate as a Toxic and Therapeutic Agent.

M. Vulpian has studied experimentally the toxic and therapeutic effects of this salt (*Jour. de Pharm. et de Chimie*, Sept. and Oct. 1883; *Gaz. Hebdomadaire de Médecine*, December 14, 1883). This salt was given hypodermically, dissolved in twenty parts of water, to dogs, rabbits, and frogs; a dog weighing 22 lbs. receiving nearly 4 grains of the bichromate. The results were vomiting, diarrhœa, bloody evacuations, great general feebleness, severe clonic convulsions, and speedy death in from two to four hours. The convulsions were indubitably observed in only one dog, and were not observed in rabbits. On section, all the muscles were found red; the heart and lungs were healthy; the liver exhibited chamois leather-colored patches disseminated over its surface, and the hepatic cells contained numerous fatty granules; the spleen was normal; the gastro-intestinal mucous mem-

brane was congested, without ulceration. The symptoms and *post mortem* appearances in dogs and rabbits were similar. Frogs merely exhibited progressive enfeeblement of the general movements, feebleness and irregularity of the respiratory movements, arrest of the sanguineous heart in diastole, and subsequently of the lymphatic heart; and in these animals the color of the blood indicated an alteration in this liquid, as Priestley had already shown is the case when the neutral chromate is administered.

Priestley had drawn from his observations these conclusions. The nervous centers are first excited, then depressed; in the rabbit and guinea-pig there are first convulsions, then paralysis, principally of the hinder limbs; in the frog, tetanic contractions of the anterior limbs; disappearance of reflex actions whilst the nervous trunks still retain electro-motricity, whence it results that the nervous centers are affected before the peripheral nerves and muscles; no special action upon the heart, which undergoes changes only secondary to those in the blood. M. Vulpian, on the other hand, only ventures thus far—that the bichromate *appears* to act upon the nervous system, *perhaps* at first by excitation; then, more clearly, in bringing about a depression of the nervous centers. It also *appears* certain that the salt acts upon the extremities of the nerves in the stomach and intestine. By other considerations, of an entirely different kind, M. Vulpian was led to investigate whether in medullary affections, especially in *tabes dorsalis*, the bichromate is serviceable, and whether in gastric affections it will not act like the arsenates and arsenites.

In medullary affections, potassium bichromate was given in the form of pills, the dose never exceeding $1\frac{1}{2}$ grains in the case of *tabes dorsalis*, and its use was alternated with that of potassium iodide and silver nitrate. In this dose, no toxic effects were ever observed. In gastric affections, the salt was given in doses of half a grain, gradually increased to three-quarters, and even $1\frac{1}{2}$ grains daily; and in some cases of dyspepsia apparently with advantage. These cases were such as led to the supposition that they were associated

with gastric neoplasms. In true cancerous affections of the stomach, Vulpian holds the bichromate to be valueless as a remedy.—*London Medical Record*.

Berlin on the Physiology of Hand-Writing.

Berlin gives (*Archives für Ophthalmologie*, Band xxviii., Heft 2) the results of an examination undertaken by the Wurtemberg Government to investigate the influence of the ordinary slanting style of writing on the eyes and bodily position of the school children. From observations made in the schools it appeared there were three more or less distinctly separated typical attitudes taken by the child while writing :

(1.) A relatively erect posture, with a considerable distance between the face and the book, and the pelvis nearly parallel to the edge of the desk ; (2.) The head and spinal column bent to the left, the face at a less average distance from the book, and the pelvis either (*a*) inclined obliquely to the left or (*b*) nearly straight ; (3.) The head bent to the right, the face nearer the desk and book, the pelvis inclined obliquely to the right.

The last attitude was much the most common, the first less frequent, the second observed with but few. All the children stooped forward more or less, least in the first, most in the third, attitude. There was also a little turning of the head to the right, so that the left eye stood nearer the desk, best marked in No. 3.

A constant relation was found between the attitude and the position of the copy-book. The line joining the centers of the eyes—the base-line—when projected upon the page at the place where the point of the pen rested, crossed the line of the manuscript at a considerable angle, running from the left and above to the right and below. To this rule the exceptions were less than 2 per cent. ; in these, the base-line crossed from down and left to up and right. Never was there found parallelism between the base-line and the lines of a copy-book. It appeared farther that the relation of the base-line to the lines of a book determined

the attitude of the writer ; in other words, the position of the book determined the position of the whole body.

In attitude No. 3, the page always was on the right side, its lines parallel to the edge of the desk. With this position of the page, to comply with the rule as to crossing of the base-line, it was necessary that the left eye should be further forward, and this was effected partly by inclining the head to the right, partly by right obliquity of the pelvis.

In attitude No. 1, the lines of the page ran from left down to right up, the page being either to the right or in front. Here the customary relation of the base-line to the lines of manuscript required that the base-line should be nearly parallel to the edge of the desk, and this was attained by the assumption of a relatively upright position of the body.

In attitude No. 2 (*a*) again the book was placed very obliquely, so that its lines made an angle of much more than 45° with the edge of the desk. This position required that the base-line should incline to the left to preserve the characteristic angle, and to effect this the head was bent to the left and the pelvis swung in the same direction.

The constancy in the relation of the base-line to the lines of the writing-book naturally led to the question, What is the law which prescribes the direction of the base-line ? This question seems satisfactorily answered by the discovery, as the result of numerous careful measurements, that the downstrokes of writing make an angle of 90° with the base-line. Yet there are not unfrequent variations from this law, and in two directions. On the one hand, the angle between downstroke and base-line is much greater than 90° , ranging to 120° and more ; on the other hand much less, to 50° .

In the first of these groups it was found that, instead of the downstrokes, the upstrokes formed a right angle to the base-line ; in the second group, the upstrokes were parallel to the base-line. The cases of this last group are identical with those above mentioned in which the base-line crossed the manuscript from left down to right up, and in which attitude No. 2 (*b*) was assumed.

These general results were obtained by examination of more than 300 children. Further observations and measurements were made on 562 other pupils of various ages, and attention was given also to many other details. Berlin only discusses here the data which serve to explain the influence which the laws governing the movements of the eyes have on the act of writing. The difficulty of measuring accurately the angle made by the downstrokes with the base-line proved to be considerable. Yet the results were on the whole so constant, that this angle is regarded as the cardinal point in the physiology of writing. Of 371 measurements, 93 per cent. gave approximately a right angle between the base-line and the downstrokes, but few deviating considerably from this, and the average being $85^{\circ}.5$. In 5 per cent., the upstrokes stood at a right angle to the base-line. Finally, in 2 per cent. the upstrokes were parallel to the base-line. The committee believed, therefore, that 93 per cent. of the writers followed the downstrokes with the eyes and in a direction perpendicular to the base-line; 7 per cent. followed the upstrokes, 5 per cent. perpendicularly to the base-line, 2 per cent. parallel to it.

A peculiarity was observed in the writing of those individuals in whom the angle between the base-line and downstrokes was much less than 90° , which seemed of importance. The longer strokes above the lines of the paper were concave toward the left; sometimes also the strokes below the line were concave to the right, so that the whole stroke approached an S form.

The explanation of this phenomenon, as well as of the usual relation of the base-line to the downstrokes, and, exceptionally, to the upstrokes, is found in the established laws of ocular movements. Only when the eyes move vertically or laterally do the visual axes follow straight lines; when the movement is diagonal, the path is a curved one. The hand of a child in writing follows the same path as the eyes; it can, therefore, form the straight down or up strokes only by moving vertically to the base-line, or, exceptionally parallel to it. When it tries to form the strokes in a

direction diagonal to the base-line, they become often involuntarily curved. Only by a few, however, is this attempted. Usually the child twists head and body to bring the base-line into the position in which the strokes can be most easily made straight. If, then, the book be held nearly parallel to the edge of the desk, head and body will be kept continuously turned to the right, and this position will tend to cause spinal curvature, and, through speedy tiring of the muscles of the back and consequent approximation of the eyes to the book, myopia.

The conclusion is reached, that the act of writing is dominated mainly by the laws of ocular movements. With the lines of the copy-book parallel to the edge of the desk the child *must* sit twisted to the right; with the book inclined obliquely to the left he *can* sit erect; while, if the obliquity of the book be excessive, he must twist towards the left.

Of 514 children, in about 80 per cent. the left eye was nearer the desk than the right, the maximum being 35 millimètres; in 5 per cent. the right eye was nearer, in 15 per cent. the distance of both eyes was the same. The degree to which the eyes were directed upward or downward in relation to the plane of the face was also measured. In 3 per cent. only was the direction of the gaze above the horizontal; the average direction was 20° downward.

As to the most important point, the perpendicular direction of the strokes to the base-line, these observations agree with those of Weber; in other details, they differ from his conclusions.—*London Medical Record*.

Annandale on a Case of Encysted Vesical Calculus.

[Mr. Annandale, in the *Brit. Med. Jour.*, Dec. 1883, p. 1122, records the case of a man aged 73, who came under his care with signs of stone in the bladder. The patient had previously been sounded on many occasions, but no stone was detected. The author also sounded him very carefully in different positions, but never detected a stone. The patient at the time had almost recovered from a

slight attack of hæmiplegia, and enjoyed good health, except that he suffered greatly from the vesical irritation. Mr. Annandale decided to explore the bladder by external incision, and open the membranous portion of the urethra. After some time, a stone was detected in the base of the bladder, fixed to the wall. It was removed after some difficulty, bringing away portions of the mucous membrane with it. The wound was plugged with a tube, and the patient made excellent progress until the fifth day, when an attack of hæmiplegia carried him off. The stone was composed of oxalate of lime, with a light coating of phosphates. It was one inch in diameter, and round in shape.—*London Med. Record.*

Clark on a Case of Obstruction of the Bowels treated by Abdominal Section.

Mr. H. E. Clark, of Glasgow, in the *Lancet*, October 1883, p. 678, reports a case of obstruction of the bowels occurring in a man aged 32. On admission, on Feb. 2, 1883, there was a history of stoppage of the bowels for seven days. On Feb. 4 there was so much distension of the abdomen from gas that puncture was performed, affording great relief. Enemata were frequently given, but nothing was brought away. On Feb. 20, after colopuncture had been done on several occasions, laparotomy was decided upon. On opening the abdomen, an enormously distended portion of the bowel came into view; and by passing the hand into the pelvis, constriction was easily made out, occupying the lower part of the rectum. It then became evident that the distended portion was colon, and that this had become twisted by the sigmoid and descending portions passing round the upper part of the rectum. By twisting the enlarged portion, so as to make three half turns from right to left, the constriction was easily removed, and it was noted that no structural change had taken place in the portion of the bowel so constricted. The next question was, how to reduce the bowel so as to allow its being returned to the abdominal cavity? This was done by employing enemata by means of a Higginson's syringe;

large quantities of olive-oil and warm water were used at first, but it was found that injections of very warm water alone proved most effectual in evacuating the fæces contained in the bowel. Eventually the intestines were returned, and the wound stitched up. The patient made a good recovery, leaving the hospital after five weeks.—*London Med. Record.*

Silvestrini on the Course of the Fever in Acute Croupous Pneumonia.

Pneumonia is usually divided into three periods, numerous variations being, however admitted, and to each period a special course of fever corresponds. According to the author (*Revista Clinica and Annali Univ. di Med.*, Nov. 1883) this division is an error. There are cases of pneumonia which run their course in three days, others in much more; and the temperature follows in its behavior the various phases of the morbid process. The temperature-curve is irregular even in cases of frank pneumonia following a typical course; if the temperature be taken every two hours, oscillations are noticed which escape observation if the thermometer be only used twice a day. The author records cases in which objective examination and consideration of the thermic curve showed that rise of temperature always coincided with the appearance of a new pneumonic nucleus, and diminution or cessation of fever with the appearance of the signs of hepatization. At this moment, when the exudation coagulates, a compression is produced between alveolus and alveolus, and arrest of the blood and lymphatic circulation, and hence absorption of the pyrogenic products of inflammation is prevented. Fever only accompanies the period of exudation, during which the absorption of the pyrogenic products is facilitated; every elevation of temperature corresponds to a new invasion of the process, the pneumonia being considered as the union of so many pneumonic processes, which succeed one another with greater or less rapidity in different cases; and this succession of accesses goes *pari passu* with the oscil-

lations of the thermic curve. The duration of the morbid process is short, the succession of anatomo-pathological periods rapid; but the nature of the process is to diffuse itself in other territories, where the same phenomena are developed, capable of producing the same manifestations. If the invasion take place quickly, there will be almost continuous fever; if slowly and interruptedly, the fever will have a more or less regularly intermittent type. If the pneumonia invade one tract only of the lung, and be arrested there, it will give rise to symptoms only lasting one day or two; if the process invade gradually all parts of a lung, there will be fever of long duration. The diffusion of the morbid process is by the bronchi, and not by lymphatic absorption or contiguity. If the diffusion took place by contiguity, those cases in which the process invades irregularly various zones of the lung could not be explained. The author gives two cases, in which the pneumonia invaded first the superior lobe of one side and then that of the other. This manner of diffusion has given rise to the belief in the infective nature of the disease; but the infectivity must be restricted to epidemic cases only, and to the forms which arise during the course of an infective malady. A lobule, or a given group of globules, is seized with an inflammatory process, giving rise to a copious liquid intra-alveolar exudation, which, if it have not originally specific properties, easily acquires them. This exudation, issuing from the smallest bronchi, reaches the nearest bronchial ramification, going to another tract of lung, and thus gives rise to the same process in other alveoli. The disease may thus continue its progress, until either by deficiency of inflammatory products, or by their rapid coagulation, expectoration ceases. The diffusion of the process would be thus influenced by the fluidity of the exudation, by the diminution of the bronchial sensibility, or by alteration of the vibratile epithelium, all which would facilitate the passage of the exudation from one part of the lung to another. The supine position which the patients necessarily keep facilitates the descent of the exudation into the most dependent (posterior) parts, and

this explains the facile diffusion of the pneumonia in the posterior inferior parts.—*London Med. Record.*

Hryntschak on a Case of Tetanus Neonatorum.

The following case is recorded in the *Archiv für Kinderheilkunde*, Band v., Heft 1. The birth of the child, a boy, was a little difficult, but presented nothing unusual. On the fourth day, a short-sighted nurse tore off the remains of the umbilical cord, and stopped the bleeding which ensued with a rag soaked in brandy. Later, lead ointment was applied. On the tenth day the child ceased to take the breast, and its whole body became stiff with ever-recurring convulsions. The father was said to have once had a tetaniform fit, and two out of the three other children died of convulsions. On the twentieth day the child, whose condition had remained unaltered, was brought to the hospital; its whole body was then stiff, so that the child could be held straight out by one foot. The head, with its fontanelles, was normal; the arms were half flexed and pronated, and crossed over the breast. The shoulder-joints alone showed any mobility. The navel was the seat of a sanguineo-purulent discharge, and the skin around was red and swollen. At this stage of the examination the child had a fit—one of those which, according to the mother, had recurred every five or ten minutes for the previous forty-eight hours. It began with a short bleating noise; then the head was retracted to the utmost, the trunk curved backwards in complete opisthotonos, the forehead wrinkled, the eyes closed, the teeth clenched, the mouth projected like a muzzle, and the face dark blue. The pulse could not be felt. The temperature in the rectum was 101°.2. Lead lotion was ordered for the wound, and chloral-hydrate internally, one-tenth of a grain every hour. In the evening the condition of the child was unaltered, except that the temperature was 99°. The respirations in the interval were 50°. Six doses in succession were then given, and two hours' quiet sleep followed. The next day, Aug. 30, the joints were a little more mobile. On Sept. 1 the temperature

had fallen to $98^{\circ}.8$ and the fits were stronger, but the navel looked healthier. The dose of chloral was increased, so that 15 grains were to be taken in the course of each day. On Sept. 2 the temperature was $95^{\circ}.6$. The child began to move its feet, and often slept for hours together. During the next week the child had about seven fits a day, and the temperature was about 97° . On the 9th, the feet became œdematous. On Sept. 13 there were two fits a day; temperature, $96^{\circ}.3$. The extremities could be flexed and extended. The trismus disappeared. Chloral reduced to $7\frac{1}{2}$ grains daily. On Sept. 14 there was a return of fits and trismus; 15 grains of bromide of potassium were given. On Sept. 15 a large number of fits occurred with marked cyanosis; œdema was increasing; the extremities were stiff; $7\frac{1}{2}$ grains of chloral were given daily. On Sept. 19 no fit for 24 hours; temperature $96^{\circ}.1$. On Sept. 25 there were no more fits, but the muscles were still rigid; there was no trismus. The chloral was discontinued on account of diarrhœa. Temperature 99° . Oct. 2 no rigidity. Digestion good. The child was frequently seen afterwards, but no trace of the complaint remained. The temperature, which was always taken in the rectum, was checked by using two thermometers.

Hamilton on a Case of Meningocele and Imperforate Anus in the Same Child.

In the *Australasian Medical Gazette* for September, 1883, Dr. A. G. Hamilton publishes a case of Meningocele and imperforate anus occurring in a child, which is remarkable firstly as regards the concomitancy of these two malformations in the same child, and secondly, on account of the extraordinary vitality possessed by the patient in recovering from the operations undertaken for their relief. On Sept. 3, 1882, Dr. Hamilton was sent for to see a new-born male child, with a meningocele at the pronal part of the occipital bone just behind the foramen magnum. Three days later the nurse told him that, although three doses of castor-oil had been administered, nothing had passed, and that she had failed to find a passage. Seven days after the child's birth, Dr. Hamilton

found it very low, and in great pain, vomiting every time it took the breast; the ejected matter being tinged with meconium; the abdomen was very tympanitic. On examination, the anus was found imperforate, but no bulging of the gut could be felt. Dr. Hamilton made an incision in the middle line; no meconium appeared. On introducing his finger, it was arrested about two inches from the orifice by a membranous septum, occluding the rectum. When the child cried, a sense of bulging downwards was felt; from which he inferred that the bowel was continuous above. He made several notches in the membrane, and stitched the mucous membrane to the skin. On removing his finger, the contents of the bowel escaped freely, and after a short time the child appeared much more comfortable. The nurse was instructed to pass up her finger every day, and to use bougies. Up to the time of the report no contraction had taken place, and there was perfect control over the fæces. [Dr. Hamilton omits to say whether he found any depression at the situation of the anus. We strongly suspect that there was such a depression. Three days elapsed before the nurse detected the malformation, strong evidence in favor of the presence of a perforate anus, otherwise the discovery would have been sooner made. Secondly, Dr. Hamilton states that no bulging of the gut could be felt; If the case had been one of imperforate anus, such bulging would have been undoubtedly felt. Thirdly, he found the gut two inches from the orifice, and yet was able to attach the mucous membrane to the skin, which he would not have been able to do had the anus not led into a depression lined with skin. The case, from Dr. Hamilton's own showing, is to our mind distinctly one, not of imperforate anus, but of imperforate rectum.—*Rep.*] A month later, the child was brought again with a view to having its meningocele treated. After a preliminary tapping and the removal of 3 ounces of fluid, Dr. Hamilton determined to remove the tumor with whipcord. The ligature was removed the day after its application, and no bad symptoms occurred. Three months later, the child was well and thriving.—*Lond. Med. Record.*

Le Breton on Hæmatoma of the Sternumastoid in Newborn Children.

The two cases here recorded (*Paris Médicale*, No. 46) do not present any very special features. The tumors were observed respectively on the eighth and eleventh days, and were then of the size of a nut; they subsequently became as large as a chestnut, and appeared incorporated with the muscle, becoming hard when this contracted and following its oblique direction. One was painless, but the other appeared slightly tender. Both the children were delivered by the breech, and in one considerable traction was required before the head would pass.—*London Med. Record*.

Uffelmann on the Artificial Feeding of Children.

Dr. Uffelmann communicates to the *Deutsche Med. Wochensh.* of Sept. 19 a report on the artificial nourishment of children in the hospice des Enfants Assistés in Paris. A separate department, called the "Nourricerie," has been instituted for this purpose, containing two wards separated by a corridor, with four beds for nurses and eight cots for infants in each. At the end of the corridor is a stall, where five asses with their foals are kept, the presence of the foals being considered desirable to stimulate the secretion of the milk. When an infant is to be fed he is carried by his nurse into a stall, where she sits on a low stool by the side of the ass, and holds the child under the animal in such a way that he can suck conveniently. The babies take to the nourishment apparently with as much relish as from their mothers, and the asses soon get used to their presence. One ass suffices for three children, and only after their wants have been appeased are the foals allowed to suck, extra nourishment being also given to them. The children thus fed have been hitherto exclusively those of a syphilitic tendency, nearly all of whom died in the Foundling Hospital when fed by the bottle. Since the adoption of the above-mentioned treatment, 70 per cent. have lived. Goats were at first employed instead of asses, but they were found to be much less suitable for the purpose, 82.6

per cent of the children dying whilst taking their milk. The children are placed under very favorable conditions in other respects also, each nurse having only two children to look after, and always the same two, so that she becomes attached to them, and tends them better than if she were always changing them. The only drawback to the institution is its small size, as each child must be dismissed in about three weeks to make room for another; but it is hoped that funds for enlarging it may soon be procured.—*London Med. Record*.

Fournier on Teeth in Inherited Syphilis.

In a very long paper published in the *Annales de Derm. et de Syph.*, Nos. 9 and 10, 1883, M. Fournier discusses in great detail the various changes in the teeth that may be found in subjects of inherited syphilis. The influence of the disease may be shown in two ways: 1. by delay in the evolution of the teeth; 2. by arrest of development and modification in structure—the origin of the consecutive malformations of the teeth. The first of these is of but slight value in diagnosis, and does not require any detailed description. It is the second class of changes to which M. Fournier devotes much attention, and which he divides into four principal groups, viz.: 1. Erosions of the teeth; 2. Microdontism, or abnormal smallness of certain teeth; 3. Dental amorphism, characterized by the fact that certain teeth lose, more or less, the proper attributes of the type to which they belong; 4. Vulnerability of the dental system, shown by rapid wearing, alteration, and early decay of certain teeth. To these four principal groups may be added some rarer peculiarities, e.g. irregularities of implantation, and anomalies in the position of the teeth in regard to one another. M. Fournier next puts forward the following propositions: 1. The influence of inherited syphilis may be shown on both sets of teeth. 2. The milk teeth are—or, at least, appear to be—much less frequently influenced by syphilitic heredity than the permanent teeth. 3. Malformations of the teeth, due to syphilitic heredity, are generally multiple and

symmetrical (in the affected jaw). Erosions of the teeth are divided into two groups. *Group I. Erosions of the crown of the tooth.* These are subdivided into (a) cup-shaped erosions (*en cupule*) ; (b) Facet-shaped erosions (*en facettes*) ; (c) Furrows (*en sillon*) ; (d) *Erosion en nappe*, which is simply an exaggeration of the preceding forms, *i. e.* in which they cover a large surface of the crown (honey-comb tooth). *Group II. Erosions of the cutting edge of the tooth.* These vary according to the kind affected. Thus, in the first molar (the only one which shows the influence of syphilis) there is true atrophy of the summit of the tooth (*atrophie cuspidienne* of Parrot). The canines may show two kinds of erosion, and the incisors at least five kinds. It is to the last of these five kinds, called here "Hutchinson's tooth," that the greatest importance attaches. Its chief characteristic is a semilunar notch in the free border. (A long account of this form of tooth, according to Mr. Jonathan Hutchinson's description of it, is then given.) Erosions may affect the temporary or permanent teeth, but much most frequently the latter. M. Fournier's opinion on the subject of erosions in connection with inherited syphilis is as follows : 1. The dotted, cup-shaped, and facet-shaped erosions, as well as a serrated condition of the cutting-edge, have little or no value from a diagnostic point of view. 2. Erosion in the form of furrows (*erosion sulciforme* of Parrot), though of more value than the others, is not infrequently found without any syphilitic taint. 3. Atrophy of the crown of the tooth, especially of the first molar, has more significance. 4. The best sign, and, indeed, an almost certain one, of inherited syphilis, is the semilunar notch of the free border (Hutchinson's tooth) ; and when this affects the median upper incisors it is a particularly valuable, but still *not pathognomonic*, sign of the taint. The other changes, viz., microdontism, amorphism, vulnerability of the dental system, etc., are next considered ; but, like the erosions, none of them are pathognomonic of syphilis. Syphilis is not only capable of originating changes in the teeth, but clinical observation shows that it is one of the most active causes. The con-

clusion arrived at by M. Fournier is that, though the dental malformations in question should always lead to a suspicion of inherited syphilis, they are none of them in themselves conclusive evidence of it.—*Landon Med. Record.*

Zakharevitch on the Excision of Syphilitic and Soft Chancres.

In the *Vratch*, 1882, No. 33, p. 546, Dr. V. M. Zakharevitch, on the ground of fifteen cases operated on by him during three years, ardently advocates excision both of syphilitic and of soft chancres, and lays down the following rules : 1. Syphilitic chancre must be excised in all cases where its situation permits the fullest possible operation, and when the swelling of the lymphatic glands is not older than two days. 2. Similarly, soft chancres must be excised in all cases where the operation is permitted by their situation. The advantages of excision of soft chancres, as enumerated by the author, are these : a. In some cases, excision, with subsequent suturing, leads to healing by the first intention, and thus shortens the period of healing of a chancrous ulcer to the extent of a few days. b. It shortens the process of healing to a half or a third of the usual time, even in cases where the operation has not been followed by the application of sutures. c. It removes all question of mistakes in diagnosis, with their consequences (the author finds that hard chancre in its initial stage is frequently mistaken for a soft ulcer, in consequence of which the excision is practised only too late). 3. When there exists the slightest suspicion of the real character of a chancroid ulcer, excision must not be followed by the use of caustics or application of sutures ; otherwise, if the induration of the wound appear, it may come to observation only too late for treatment (that is, for repeated excision). 4. Excision must be performed under the permanent irrigation of the field of operation, while the operator must most strictly avoid touching the wound with the fingers or with instruments bearing any traces of chancrous fluid. [Dr. Zakharevitch is, we think, the first Russian medical man who has enthusiastically stepped forward to de-

fend the excision of chancres. We doubt, however, that his sympathies will be readily echoed amongst his countrymen, especially now, after Dr. S. P. Tomashevsky has published his fifty cases of excision with fifty absolute failures (*St. Petersburg Inaugural Dissertation*, 1883, pp. 198; and the *London Medical Record*, Feb. 1883, p. 58). The results announced previously by four other Russian observers were also not very satisfactory. Professor V. M. Tarnovsky published ten cases, all failures; Professor P. Gratziansky seven cases, all failures; Dr. Pospeloff two cases, one success and one failure; and Dr. Zarevitch one unsuccessful case.—*Rep.*]
—*London Med. Record*.

Boyce on Epileptic Convulsions, with Unusually Slow Action of the Heart.

The following case has come under my notice; and, as I have not been able to find published in the journals, or in the books at my command, an instance of such unusually slow action of the pulse, I have deemed it worthy of professional notice. A *post mortem* examination was, unfortunately, not permitted.

E. B., aged 28, a strong, muscular man, had served for a short time in the county police-force, and claimed his discharge two months ago, but not from any ill health. He had never received any injury to the head. He suffered from syphilis two and a half years previously to his death. On November 25th, whilst talking to a friend, he suddenly felt a violent pain shooting through the right side of the head towards the posterior part, and, during the act of exclaiming, fell down in a convulsive fit. He soon recovered consciousness, and returned home, but, not feeling very well, went to bed. During the night, vomiting came on, and soon afterwards another convulsion. The vomiting and convulsions were repeated frequently before I saw him, early on the morning of November 26th. I was informed that vomiting persisted after everything taken into the stomach, and retching continued after the stomach was empty. The tongue was

clean; the bowels constipated; the pupils dilated, but acting to light. The *tache cérébrale* of Trousseau was marked; the countenance was pale; the ears were of a dull purplish color, exhibiting dilated veins and capillaries; the pulse was 24 per minute. I was informed that complaint had frequently been made during the last two months of pain in the head. I had the bowels well opened with an aperient; but no medicine which I administered was able to arrest the vomiting. Accordingly, beef-tea enemata were given.

Nov. 27th. He passed a very restless night. Vomiting and retching were less frequent. Convulsions occurred every few minutes, whether the patient were asleep or awake. A small quantity of urine which was passed yielded, on examination, no albumen nor sugar. The pulse in the morning was 14, in the evening 24; respirations 36. During my morning visit, an epileptic convulsion took place. Tonic and clonic spasms were present. On the return of consciousness, the face became suffused, and the patient asked where he was. I happened to be recording the pulse immediately prior to one of these fits, and observed that it was totally absent for fifteen seconds. During the fit, it was exceedingly slow; but afterwards it beat for a few minutes with greater frequency, averaging 37, and gradually fell again to 24. On November 28th, the fits were still very frequent. He had retained a small quantity of fluid nourishment and medicine (iodide of potassium). The pulse in the morning was 37, in the evening 24; respirations 37. The patient died seven hours after the evening visit.

During this short illness, the patient made frequent complaints of want of air, asking for the windows and doors to be left wide open. Percussion of the head elicited pain in the inferior and superior postero-parietal regions, but not in other parts. Such pain, says Dr. Alexander Robertson, is often associated with disease of the skull, generally syphilitic. The congested state of the auricle, which showed up vividly in contrast with the pallid face, may have been symptomatic of some vascular excitement in the new growth, or of the cerebral membranes; and the *tache cere-*

brale points to the same. The late Dr. Laycock, after a careful study of the symptomatology of the ear, came to the conclusion "that the states of the circulation, nutrition, and development of the tissues which make up the ear-lobule and cover the helix very commonly coincide with similar conditions of the encephalic tissues." (*Medical Times and Gazette*, 1862.) The local lesion upon which these well defined symptoms were dependent may be pretty accurately shadowed forth from a reflection upon the physiological phenomena. The cardiac center was involved, bringing into play the inhibitory action of the pneumogastric nerve; the pulse registering at times only 14 per minute, and being absent altogether occasionally for fifteen seconds. The pupils were dilated, showing that the center in the brain possessed of the power of producing this symptom was probably encroached upon, as was also the respiratory center, the respirations being 37, whilst the pulse varied from 14 to 24. Death resulted when the "nœud vital" of Flouriens was extensively involved. The history of syphilis leads us to suspect the gradual formation of a gummatous or hyperplastic neoplasm, and its situation evidently the floor of the fourth ventricle or its immediate neighborhood. The case was seen with me by Mr. George Sankey, who confirmed the diagnosis.—*British Med. Journal*.

Rosenberg on a Syphilitic Family.

M. Rosenberg (*Centralbl. für die Med. Wiss.* June 23) relates the following case: A man in 1852 contracted syphilis, and had a chancre followed by sore throat and condylomata. The treatment consisted in the application of the cautery, and mercurial pills. Subsequently he suffered from an eruption on his tongue and lips. In January 1859 he married, and in the same year became the father of a daughter, and of a second daughter in May 1861; both these children were healthy. In August 1861, he again contracted an infectious ulcer with glandular swelling; secondary symptoms did not appear, but he suffered from nocturnal pains in the bones, for which iodide of potassium was pre-

scribed with benefit. Soon after the healing of the ulcer he cohabited with his wife, who, two months afterwards, miscarried. In December 1862, his wife bore a son. This child, at first healthy, had, towards the end of the year 1864, roseola and gummata on the right arm, left leg, and anus. In May 1865 another child was born, misshapen and shrivelled, who was suckled by a healthy nurse. In 1866 congenital syphilis showed itself, and only at the age of fifteen began to disappear.—*London Med. Record*.

The Action of the Heart.

The short duration of the life of a theory in physiology has passed into a proverb; but when we consider the difficulty in dealing with all vital problems, wonder at this at once vanishes. Theories are suggested from time to time to put together, as it were, in a convenient form, the results of observations, to collect the data which, in an advancing science, accumulate about every important problem. It is not only reasonable, but also almost necessary, that theories should change as knowledge advances; and therefore the changeful character of physiological theories should not be a term of reproach, but rather an indication of the activity of the science. But to be useful, it should be distinctly understood that theories are made for facts, and not facts for theories. If this had been better grasped by former investigators, greater progress would have been made in the understanding of life-problems, and many subjects would not have collected around them masses of elaborate theory, unsupported by sufficient observation. It is, however, cheering that the modern physiologist appears to understand this, and makes accurate observation take the first, and theory the second place.

It is also cheering to observe that, as one theory displaces another, it is, generally speaking, the triumph of the simpler; and that, as one problem is explained in such a way, there is often a possibility of applying to another a similar solution. There have been few questions which have agitated the mind

of the physiologist so much as the action of the heart, the relation of one part to another, the influence of the nervous system, and the action of drugs upon it. Few have been worked at with so much energy, and few have produced more apparently conflicting information.

It is to this subject that we propose to direct attention, as it appears pregnant with thoughts which must have as great an interest for the physician as for the physiologist. That a great deal of work is being done on this subject, one need only refer to the recent communication of Professor Roy to the Royal Medical and Chirurgical Society to prove. If more proof were wanting, the current physiological literature, both of the continent, and, we are pleased to add, of our own country, would afford it.

It is a well-known fact that, unless under specially favorable conditions, the heart of a warm-blooded animal ceases to beat immediately on, or very soon after, removal from the body; and any extended observations upon the action of this organ have been, up to a comparatively recent date, made almost exclusively upon the hearts of cold-blooded animals, especially upon that of the frog. This animal's heart, when removed from the body, will, even if unsupplied with blood, continue to pulsate for hours, and even days, with apparent little alteration of its beat, provided that it be kept moist with serum, or similar fluid, and be not exposed to extremes of heat or cold. The action is rhythmical, commencing at the sinus venosus, spreading over the auricles to the ventricle and bulbus arteriosus; it is, comparatively speaking, slow, and very strongly resembles a vermicular action. If the heart be stimulated by the prick of a blunt needle, or by an induction-current, an extra beat, differing in no degree from the normal, will be called forth; but, by increasing the strength of the stimulus, no extra effect is produced, and a series of rapidly interrupted shocks from a magnetic interrupter will not, as if we had to deal with a simple muscle, produce tetanus. The effect of the stimulus, therefore, is to call forth a peculiar action, and not a simple contraction. The stimulant will

excite a mechanism which is either nervous or is inherent to the muscle itself.

The extraordinary effects of dividing up the heart, separating the auricle and ventricle from the sinus and from one another, is also well known, the parts beating in much the same way as the whole; the only difference being that the rhythmical action of the ventricle after section appears to be less easily renewed than that of the auricles, and that of the auricles than that of the sinus. The bisected heart also continues to beat as though whole. The only part of the heart which seems to be unable to take on a rhythmical action is the very apex of the ventricle (it will be seen, further on, that this is an apparent, not a real difference). In the frog's heart, minute ganglia have been demonstrated, chiefly localized in three situations, viz., at the sino-auricular junction, in the wall of the auricles (interauricular), and in the auriculo-ventricular junction; but in the lower portion of the ventricle towards the apex, no ganglia have been found. A very tempting theory at once would connect the rhythmical power with these ganglia, since, where the ganglia exist, the rhythmical action is the rule, whereas, in their absence, no real rhythm occurs when the part which does not contain them is separated from the rest of the heart; and this theory is the one which, with more or less modification, has been held. Observing the rhythm of the heart to begin at the sinus, it supposed that the ganglia in the sinus were the originators of the rhythm, the ganglia in the interauricular septum and in the auriculo-ventricular grooves taking it on in turns, in subordination to its starting-point, or modifying it in some way. The main interest, then, of these experiments centers upon the relations between the ganglia and the muscle. The beat is evidently automatic, as it will occur in the heart removed from the body, and is not called forth by the stimulus of the blood or similar fluid within the heart-chambers, that is, by simple reflex action, as was formerly taught, since the beat will go on in the absence of such fluid.

As a subordinate question to the relations between the ganglia and the auricle comes the question of the relations be-

tween the sinus-rhythm and that of the rest of the heart. As regards this latter question, it may be said that, as the parts of the heart can beat rhythmically without the sinus, it is unlikely that the sinus produces the rhythm.

But it is as regards the other question, as to whether the rhythm is due to nerve-influence either partially or entirely, that the difficulty arises; and, if due to the action of the ganglia, whether this action be intermittent or constant. Is it motorial or otherwise? The experiments of Eckhard, Foster, and others, which showed that the application of a constant stimulus, electrical or otherwise, will produce a rhythm of contraction in an isolated apex void of ganglion-cells, make it probable that, if the movement be due to nerve-influence, this is constantly in action, but is converted into rhythmical action by the muscle itself, and would give to the heart-muscle a property somewhat similar to that which was called long ago "rhythmical nutrition" by Paget. But Gaskell, in his exhaustive series of experiments, goes further, and supports a myogenic origin of the heart-rhythm. His experiments upon the frog have been controlled and contrasted with similar experiments upon the heart of the tortoise and other animals. He has shown that a strip taken from the very apex of the heart and kept moist in a chamber, will, if subjected to a stimulus of induction-shocks sent in at regular intervals, after a time take on a spontaneous rhythm, which cannot but be myogenic, as no ganglia exist in the strip; and we could scarcely believe it possible that the movement is due to the presence of nerve-fibres only, for they cannot originate movement. He has further demonstrated that the apparent difference between the action of the sinus, of the auricles, of the ventricles, and of parts of the latter, is one of degree, not of kind. If the one be myogenic, so too, in all probability, is the other, as it is unlikely that the several parts of the heart beat rhythmically according to different systems. The ventricle of the tortoise, if removed from the auricles, remains for a time quiescent, then commences to beat slowly, then more quickly, until it attains the maximum. So, too, for the strip from the ventricle; it

remains quiet for a longer time; and then, under stimuli (or without?), will commence to beat, and will go on faster and faster until it reaches a maximum. The same observations are true of the action of the auricles, and of a strip from either auricle; and also of the sinus; the only difference being that there is a gradual lengthening of the period, during which the heart is as it were developing its rhythm in a quiescent state, from the sinus to the ventricular apex. We shall return to the bearing of this theory on the nerve-apparatus of the heart, and to other problems of the cardiac beat, on another occasion.—*British Medical Journal*.

Chapin on a Case of Sudden Death from Pressure on an Inflamed Pneumogastric Nerve.

Sudden and unexpected death in the midst of apparently light illness is an event at once appalling to friends and distressing to the attending physician, who, unless able to give a ready and satisfactory explanation of the accident, too often suffers unjustly in reputation. It is thus extremely important, in the interests of the profession, that a careful investigation of all such cases be made, and any cause of death be recorded that may be somewhat uncommon and thus liable to be overlooked. It is often much easier in public than in private practice to obtain autopsies and study out obscure manifestations of disease. The following case that came to my clinic at the Out-door Department of Bellevue Hospital was one of great interest to me, inasmuch as I was unable to make a diagnosis during life, and found a condition after death that would have been impossible to treat, even if I had been able to recognize it.

Mary D., aged two years and eleven months, was brought by her mother to the dispensary September 5, 1883, to be treated for a slight cough. A physical examination of the lungs proved negative, and I should have dismissed the case as one of simple catarrhal tracheo-bronchitis had not a peculiar sound during respiration attracted my attention and led me to study the case more carefully than is usually practicable in a large dispensary service. The child was

well nourished, and quite large for her age. The only point in a good previous history that seemed to show any constitutional taint was the fact that she had reached the age of eleven months before getting her first tooth. The mother stated, however, that she had always been healthy, and when I examined her there was nothing suggestive of a rachitic appearance. Five months before she had an attack of pertussis, and had coughed some ever since. Occasionally she would have some wheezing. The peculiarity about the case was an obstructive sound, heard plainest on inspiration, that could be recognized at a little distance from the child. It was somewhat suggestive of croupy breathing, and yet not exactly like any I have heard. There was not the slightest dyspnœa accompanying this obstruction. An examination of the throat by the finger revealed no swelling or abscess that might have escaped the eye. The temperature was normal. There was no appearance of diphtheria in the fauces, but, fearing an insidious form of diphtheritic croup low down in the larynx, that, although at present causing no inconvenience, might suddenly develop urgent dyspnœa requiring tracheotomy, I directed the mother to keep close watch of the child and report to me at once any untoward symptoms. I was somewhat surprised when she appeared with the child on my next dispensary day, stating that she was just the same, no better and no worse, but with the same peculiar sound in breathing. For the next few weeks she was brought at stated times to the dispensary, and seemed to improve under tonics and simple expectorants. The cough, which had never troubled her very much, was getting a little better. I had excluded the idea of the existence of any pseudomembrane by the entire absence of dyspnœa, and the fact that the voice was never interfered with in the slightest degree. There had never been any dysphagia. The last time I saw her was on October 8th, when she seemed in a very fair condition, and her mother thought it would not be necessary to bring her any more. The tracheal or laryngeal râle also seemed not quite so distinct. I had taken her temperature a number of times, and always found it

normal. On October 10th the mother came to my office in great distress, saying that her child had died very suddenly the previous evening. She ate a hearty supper at six o'clock, after which she seemed in unusually good spirits, laughing and playing with her mother. About 8 P.M. she was taken with a paroxysm of coughing, in the midst of which she was suddenly seized with intense dyspnœa, grew rapidly cyanotic, and rolled over on the floor dead. The breathing had not troubled her in the slightest all day, and her voice was as perfect as ever up to the time when she was attacked by the fit of coughing that just preceded her death. The entire absence of dysphagia up to the last was shown by the fact that the child ate and relished a hearty supper two hours before she died.

Autopsy.—Child well nourished. In order to remove the food and air passages without disturbing their relations any more than possible, I removed the lungs from below, and, cutting across the œsophagus, stripped it up from the vertebral column. While proceeding cautiously in this manner, a large quantity of pus suddenly appeared from the rupture of an abscess situated back of the upper part of the œsophagus. On examining this more carefully, I found that the abscess was placed within and in front of the first and second dorsal vertebræ, which was deeply carious. In fact, all that was left of the bodies of these bones was a mere shell inclosing masses of dead bone, but the spinal canal had not been invaded. The inner surface of the œsophagus was healthy looking and intact. The rupture of the abscess had evidently been caused by the removal of the œsophagus, which dragged open the sac.

Miliary tubercles were found scattered through the lungs, also in the trachea, which was injected and covered by muco-pus. Just below and to the right of the abscess, was seen a large and hard cheesy bronchial gland. Between this enlarged gland and the sac of the abscess, which were in close apposition, the right-pneumogastric nerve passed and was compressed just where the cardiac plexus of nerves was given off. Just above this position the vagus appeared swollen.

In order to determine exactly the condition of the pneumogastric nerve, I gave the specimen, which had been removed entire, to Professor Welch, who has given me the following as the result of his examination: "A portion of the pneumogastric nerve was removed which was adjacent to the tuberculous abscess and a caseous bronchial gland. To the naked eye, in this region the nerve appears somewhat swollen. The swelling is fusiform in shape. Upon section, the nerve appears gray in color and rather firm in consistence. Examined microscopically, the nerve is found to be the seat of a chronic interstitial neuritis. The whole nerve is surrounded by dense fibrous tissue, which is prolonged into the interior of the nerve in bands which separate the nerve fibres into large and small bundles. Some of the nerve fibres have disappeared, others are atrophied, and others appear normal. The newly-formed connective tissue is rich in lymphoid cells."

The condition here described offers, I think, a satisfactory explanation of the phenomena observed in this case. The inflamed pneumogastric nerve was subjected to continuous pressure between the enlarged gland and the sac of the abscess. During coughing this pressure must have been intensified, probably by a sort of pounding motion, which was sufficient in the last paroxysm to produce sudden cardiac paralysis. The interstitial neuritis of the vagus may have been originally started by pressure, or the inflammation may have spread to the nerve by contiguous inflammatory irritation from the surrounding tubercular tissue. Ross, in his recent work, gives, among other causes of neuritis, strong compression of a nerve and extension of inflammation from surrounding tissues and organs. He states that pleurisy, pleuro-pneumonia and tuberculosis of the lungs have caused inflammation of the intercostal nerves, as proved by Bean. Under affections of the pneumogastric nerve, he states that the trunk of the vagus is liable to be injured by compression or secondary implication from tumors of the lymphatic glands, abscesses in the neck, or aneurism of the larger arterial trunks in the chest and neck. He also states that, when the phenomena of irritation of this

nerve predominate, the action of the heart is rendered slow and irregular. If there be paralysis of the vagus, however, either unilateral or bilateral, there will be an increase in the frequency of the pulse, which may beat permanently at the rate of 120 to 160 a minute. Lastly, in pure compression of the vagus, death may result from syncope caused by irritation of the inhibitory fibres of the pneumogastric.

It appears, then, that, when the pneumogastric nerve is irritated or excited by mechanical or other agents, there is slowing of the heart's action, but sudden and complete paralysis may follow if the excitation is too severe. The latter was evidently the cause of death in my case. As no continuous record was kept of the pulse, I am unable to state whether there was any previous slowing of the heart. As nearly as I can recollect, the pulse was about normal when I first saw her. In fact, there was nothing in the case to draw any special attention to the heart's action, as both the pulse and temperature were normal at first. The peculiar obstructive rôle heard during respiration had evidently been caused by the abscess pushing forward the œsophagus and encroaching somewhat on the trachea, but not enough to cause any dyspnœa. There was no dysphagia, as the œsophagus, which allows of distension, and is surrounded by connective tissue, was subjected to pressure only from behind. Dr. Ripley has lately reported a case in which a gradually increasing and fatal dyspnœa was caused by a retro-œsophageal abscess pressing on the recurrent laryngeal nerve ("Archives of Pædiatrics," vol. i, No. 2), and different authors have recorded many cases of dyspnœa and spasmodic cough caused by enlarged bronchial glands encroaching on this nerve or on the bronchi; but I have not seen any case recorded in which a gland or abscess produced irritating effects on the cardiac portion of the vagus without involving any other part of the nerve or seriously encroaching on some adjacent structure.—*N. Y. Med. Journal.*

W. L. Paget on Injection of Hot Water in Post Partum Hæmorrhage

As every case bearing upon the treatment of *post partum* hæmorrhage is of consequence, I venture to record the following. On January 1st (this year), I was summoned to a young lady, a primipara, who had been six hours in labour; everything appeared to have gone on satisfactorily, the head (first position) being, at my arrival, almost on the perinæum; the latter, however, was somewhat rigid. After upward of two hours had elapsed, during which time I dilated the perinæum, as little or no progress had been made, and the pains were gradually diminishing in frequency and force, I administered chloroform (a little had previously been given), and applied the forceps; before extracting, however, I gave a subcutaneous injection of ergotine to guard against the occurrence of *post partum* hæmorrhage. The extraction occupied about ten minutes, and was followed by the customary amount of discharge; the nurse, by my direction, carefully following up the child during the birth, and afterwards maintaining firm pressure on the abdomen. As the child did not breathe, I was some four or five minutes in exciting respiration; just as this had been satisfactorily accomplished, I was alarmed by the sound of a tremendous gush of fluid in the bed. Hurrying to the patient, I took the nurse's place, and made firm pressure on the uterus, which was quite relaxed, and at once removed the placenta; this was followed by another torrent of blood. I immediately introduced my hand into the uterus, and cleared it of clots, making counter-pressure outside; and, although there was a feeble attempt at contraction, the hæmorrhage continued. Fortunately, I had my Higginson's syringe at hand, and a long uterine tube ready attached; there was also a can of very hot water in the room; so, without a moment's loss of time, I introduced the tube, and injected some of the water (the hand could just be borne in it), with the effect of producing almost immediate contraction and cessation of hæmorrhage. At the same time, I administered some beef-tea, as hot as the patient could drink it, along with brandy and champagne. Although there was no

further hæmorrhage, I gave a second injection of ergotine, and also kept up firm pressure on the abdomen, with the occasional application of an iced cloth. Under the influence of nourishment and stimulants, the patient's pulse, which had been exceedingly feeble and rapid, improved notably; and, two hours later, I could leave her without anxiety. She has since progressed favorably. The hot injection is evidently a potent means of arresting *post partum* hæmorrhage, and is, I imagine, superior to cold applications; the latter, if continuously applied, have certainly a depressing effect, and may produce the very condition one wishes to avoid.

I have almost invariably noticed that the cases of hæmorrhage which have produced anxiety have been those in which I have had difficulty in bringing about respiration in the child, and, consequently, have been compelled to give up the control of the uterus to the nurse. Very few nurses have an intelligent appreciation of how to accomplish this effectually; they usually allow the uterus to ride up under the hand, and then pressure does more harm than good. I would modestly submit the following points, which, if followed, will reduce to a minimum cases of the kind: first, the administration of plenty of nourishment during labor; secondly, in a suspicious case, a dose of reliable ergot just before the child is born, or the hypodermic injection of ergotine, especially applicable if the patient be under chloroform; even in a primiparous case this is admissible, if the forceps be applied; thirdly, care not to push the chloroform too far, remembering the tendency to profound unconsciousness and relaxation after the child is born; fourthly, when the head is born, naturally or instrumentally, leave the rest of the body to be expelled naturally, making firm pressure upon the abdomen, and carefully following up the breech; never remove the hand from the abdomen, but leave the tying of the cord to the nurse; fifthly, do not hurry to extract the placenta, but allow the patient to rally, and rather squeeze it out by pressure with the left hand than pull too much on the cord; lastly, give a dose of ergot when the placenta has come away, and, in every case where there is doubtful contraction, keep up pressure

for a considerable period, giving the patient meantime some nourishment, and stimulant, if necessary. I believe, if these simple rules be followed, hæmorrhage will be a rare event.—*British Medical Journal*.

NOTE ON SOME EXPERIMENTS WITH ERGOTINE.

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It is needless to discuss the evidence of the clinical value of ergotine ; its use as an ecboic and as a hæmostatic is on most hands admitted. But the question in this, as in many other cases, is : How does the drug act ? Do the contractions of the uterine fibres indicate a peripheral, *i. e.*, local action ; or do they represent a reflex act ? Similarly—admitting that vascular spasm results from the action of ergot—is this spasm the result of direct action on the plain muscular fibres of the arterioles ; or is it produced mediately through the nervous system ?

As to the physiological data on the subject of the action of ergot Hermann (*Lehrbuch der Toxicologie*, 1874, pp. 384 *et seq.*) speaks very doubtfully. According to him, the action on the vessels is uncertain—*i. e.*, as to whether they do or do not contract. Similarly, as to the action on the heart, and the effect on blood-pressure, the results, according to Hermann, are both doubtful and contradictory. Wood, in his *Treatise on Therapeutics* (1881), discusses the subject at some length ; and we must refer to this treatise for more detailed consideration of the question ; suffice it here to say that the balance of evidence is in favour of the following two propositions :

1. Ergot causes spasm of the arterioles.

2. It produces very decided rise in blood-pressure.

As to the action on the heart, it appears that ergot, in full doses, causes unquestionably a fall in the frequency of

the contractions. Eberty ascribes this to stimulation of the vagi ; but on this point, as Hermann shows (*op. cit.*, p. 387), his statements are somewhat contradictory. Rossbach (quoted by Hermann) describes a curious inco-ordinate action of the heart, in particular of the ventricle. At times, this latter showed peristaltic waves proceeding from base to apex. These experiments were made on the frog with Wenzell's ecboilin. This description by Rossbach recalls the action of digitalis on the heart ; but it is certain that a systolic heart, if it occur, is a rare event after the administration of ergot ; whilst, on the other hand, diastolic arrest has been in many cases recorded. It appears, further, that a primary fall in the blood-pressure is in many cases witnessed after the direct introduction of ergot into a vein. This primary fall is explained by Wood as a result of a weakening of the cardiac muscle from the direct action of the drug upon it. Thus, then, ergot would resemble the digitalis-group in its action on blood-pressure and on the arterioles ; but it would contrast with the digitalis-group in its action on the heart. We must, however, not forget that digitalis, the most characteristic member of the group named after it, does occasionally arrest the heart in diastole. Boehm has explained this exceptional result as due to reflex inhibition, having found that, after section of the vagi, diastolic arrest was never witnessed in frogs (Wood, p. 137). It is clear that the same explanation may be advanced in the case of ergot ; and this is the explanation actually given by Eberty (Wood, p. 543), according to whom it is impossible to effect cardiac arrest by ergot after section of the vagi.

Leaving the question of the cardiac action of ergotine, let us return to a consideration of the action on the arterioles. In a recent series of experiments on the digitalis-group, the results of which have been given in a paper recently read before the Royal Medical and Chirurgical Society,¹ we endeavored to establish for the members of this group a direct action on the arterial walls. Amongst others, we also made some ex-

¹ November 27, 1883. "Investigations into the action of the Digitalis-Group." See *Lancet*, December 1, 1883.

periments with ergotine, the results of which we will now shortly give.

The preparation used was ergotine (Bonjean's extract). Of this, we employed in our first experiment a 1 per cent. solution; in our subsequent ones, a 10 per cent.

Our method of experimentation was the same as that adopted for the members of the digitalis-group; it was as follows. The brain and spinal cord of a tortoise were destroyed, the shell of the animal then sawn transversely in half, and the soft parts divided. Into the abdominal aorta of the hinder half of the body a canula was then tied. This canula was fed by simple syphon-action, with saline solution, 0.6 per cent. made with tap-water. The course of the circulation was, accordingly, into the tissues through the abdominal aorta, and out by the cut veins. The escaping fluid drained from a glass plate into a suitable vessel and was accurately measured. The quantity of fluid which flowed through the vessels during each interval of five minutes was then recorded.

The head of pressure varied in the different experiments, but during each was maintained constant within about 0.5 centimètre by constant additions to the supply-vessel, which was chosen of large capacity, so as to retard changes in level.

	Outflow per 5 Minutes.
Saline solution ² 0.6 per cent. supplied.	70 c.c. 66 " 64 " 64 " 64 "
0.5 c.c. ergotine (1 per cent., solution of Bonjean's extract) to each 100 c.c. of saline.	60 " 62 " 60 " 68 " 64 " 60 " 64 "
2 c.c. ergotine in 100 c.c. saline.	65 " 65 " 67 " 63 " 61 " 63 "
8 c.c. ergotine in 100 c.c. saline.	60 " 60 " 56 " 50 "

Digitaline 1 c.c. (1 per cent. solution) in 100 c.c. saline.	46 " 24 " 8 " 3 "
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Experiment.—July 11th. The temperature of room. 19.5° C. (67.1 Fahr.) Head of pressure, 31 centimètres.

In this experiment it may be observed that, till the strongest solution of poisoned saline (8 c. c. of ergotine solution in 100 c. c. saline) was employed, no diminution in the rate of flow was observed. Under this strongest solution a slight fall obtained, viz., from 67 c. c. to 50 c.c.

Our stock of ergotine being exhausted, we substituted a saline solution poisoned with digitaline (1 c. of 1 per cent. to 100 c. c. saline solution.) The sudden fall in the rate of flow, from 50 c.c. to 3 c.c., contrasts well with the powerful effect of digitaline in constricting the vessels, with the comparatively feeble action of ergotine in the strengths employed.

In our next experiment a much stronger solution of ergotine was used, viz., a 10 per cent. solution of Bonjean's extract.

	Rate of Flow per 5 Minutes.
Saline solution only.	40 c.c. 30 " 34 " 35 " 29 " 39 " 56 " 50 " 40 " 40 "
Ergotine 4 c.c. (10 per cent. solution) in 100 c.c. saline.	30 " 24 " 20 " 16 " 15 " 13 " 13 "

September 7th. Temperature of room, 15° C. (59° Fahr.) Head of pressure, 31.5 centimètres.

In this experiment, a very decided fall occurred during the circulation of the ergotised saline; but there are one or two points which require notice: the first is, that the immediate effect of the ergotised solution was to cause a rise in the rate of flow—from 29 c.c. to 56 c.c.—an increase of rate amounting to almost twice the rate at the moment of the addition of the ergot. The next point for notice is, that the solution of

² We may remark that the saline solution employed throughout was made with tap-water and not distilled water.

ergotine (Bonjean's) was strongly acid. Acid solutions have been shown by Dr. Gaskell (*Journal of Physiology*, vol. iii, No. 1, August 1886) to cause dilatation of the arterioles, and it is possible that the immediate increase in rate may be thus explained. It may be mentioned that, early during the first interval of five minutes following the substitution of the ergotised solution for the simple saline, very energetic movements of the leg-muscles occurred, but that these disappeared soon afterwards, and that thereupon the legs became quite flaccid, and the pelvic muscles did not respond by contraction to a tap or a pinch; it appeared as though the ergotised solution had killed them.

Our next experiment was made with a 10 per cent. solution of ergotine (Bonjean's extract), which had been carefully neutralised with carbonate of soda.

Rate of Flow per 5 Minutes.	
Saline solution 0.6 per cent.	18 c.c.
	18 "
	19 "
	24 "
	25 "
Ergotised saline (4 c.c. ergotine to 100 c.c. saline.)	30 "
	34 "
	23 "
	23 "
	14 "
Saline solution replaced.	13 "
	13 "
	14 "
	18 "
	24 "
Ergotised solution replaced.	25 "
	28 "
	29 "
	19 "
	13 "
Saline solution replaced.	13 "
	11 "
	10 "
	15 "
	19 "
Ergotised solution replaced.	22 "
	25 "
	20 "
	13 "
	12 "

September 10th. Temperature of room, 15.5 Cent. (59.9 Fahr.) Head of pressure, 31 centimetres.

This experiment confirms very definitely the previous two experiments. We here note that, on three separate occasions, the rate of flow falls subsequently to the addition of ergotine, to again rise on resubstitution of the ergotised solution by unpoisoned saline. The

fall in each case is very decided, viz.: in the first case, from 25 c.c. to 13 c.c.; in the second, from 28 c.c. to 11 c.c.; in the third, from 25 c.c. to 12 c.c. The movements of the hind limbs of the tortoise³ became more active almost immediately after the first addition of the ergotine, then declined, and were speedily lost; but, in spite of this, the persistence of vitality of the arterioles is proved by the dilatation which in each case followed replacement of the ergotised solution by saline solution. In this experiment, acidity as a disturbing cause was eliminated, yet the first addition of ergotine was followed by a primary rise in the rate of flow; this rise, however was but slight, and was much more transitory than was observed in the preceding experiment.

These experiments do not admit of much criticism; and, in concluding this brief contribution towards the pharmacology of ergot, we would restate in a few words the argument, the steps in which are:

1. The selection of the tortoise as an animal, the vitality of whose tissues is remarkably persistent, and therefore well adapted for lengthened experimentation;

2. The establishment of an artificial circulation through vessels removed from central nervous control;

3. The alternate addition to and subtraction from the circulation of the drug under experiment, viz., ergotine.

In how far we are justified in our conclusion that ergotine does act directly on the vessels, or, more strictly stated, does act independently of the central nervous system, we must leave to be decided by means of the experiments themselves.—*British Medical Journal*.

Society Proceedings.

PATHOLOGICAL SOCIETY OF LONDON.

Fractures of the Sternum and First Costal Cartilage.—Mr. Arbuthnot Lane read a paper on one way in which the sternum might be fractured. M. Maisonneuve had attributed fracture

³ These movements persist in the tortoise long after the spinal cord has been destroyed, as completely as this is possible by means of a wire.

of the sternum to force transmitted from the shoulder to the sternum by the clavicle; whereas Mr. Rivington had contended that the action of the clavicle was in no way essential to fracture of the sternum, and regarded the first two ribs and cartilages as the means by which was transmitted to the sternum one of the forces which fractured or dislocated it, the other being conveyed along the lower ribs. He showed that, as the inner end of the clavicle was fixed by ligaments, if vertical pressure were applied to its outer extremity, a much greater force was exerted on the anterior extremity of the first rib by the shaft of the clavicle in contact. Mr. Lane next stated that the first cartilage was one inch and a half deep at its attachment to the manubrium, while the second cartilage was only five-eighths of an inch; so that, when one cartilage was depressed by the clavicle, it tended to cause the manubrium to rotate around an antero-posterior axis, and also affected the opposite cartilage. If the pressure exerted were very great, one or both first costal cartilages might be broken, together with the sternum, without their being any displacement of fragments. Or only one cartilage might be broken. If the cartilages were very elastic, and the sternum rigid, it alone might yield, as in an experiment he had made on the dead body. In this case, the manubrium was ossified to the gladiolus. A heavy blow was struck on the outer extremity of the clavicle (carefully padded, in order that it might not be fractured), a fracture of the sternum at a point which corresponded to the junction of the first and second pieces resulted, the fragments not having been displaced. In other cases, the ligaments binding down the inner extremity of the clavicle might give way, and dislocation upwards ensue. As exemplifying this last result, he showed a specimen from the museum of Guy's Hospital, in which the inner end of the clavicle had been dislocated upwards, and the ossified first costal cartilage was fractured on the same side. Its line of fracture was irregular, and not vertical, as in fracture of the ordinary elastic cartilage. The sternum was not fractured. Mr. Lane showed a specimen similar to one which he had shown at

the Society last year. The first cartilages and sternum had sustained the same fractures, no other bones in the body showing any sign of fracture. A case recorded by Dr. Bennett (*Dublin Quarterly Journal*) served also to illustrate his view. A heavy weight fell on a man, fracturing many bones. That which had fallen on the clavicles had fractured both first cartilages and the sternum at the junction of the first and second pieces. He believed that fracture of the sternum or cartilages, or of both, was not so very uncommon as the scanty literature on the subject would suggest; also that Maisonneuve had no clear idea how the clavicle transmitted force to the sternum, which it did only indirectly by pressure on the first rib and cartilage. M. Maisonneuve apparently arrived at this conclusion by observing the frequent concomitance of fracture of the scapula and clavicle with that of the sternum. The sternum and cartilages, when fractured by this means, would present very little sign during life, or at a period long after the injury, owing to the fractures remaining in apposition. It was very difficult to decide, in many ossified first cartilages, whether they had been fractured or not, as they frequently presented a very irregular outline, owing to abundant deposit of new bone, which might either be the result of fracture, or thrown up to support the joint formed in this situation.—*British Med. Journal*.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

Discussion on the Pathology and Clinical Significance of Albuminuria.

—Professor Leishman opened the discussion on this subject, limiting his remarks to the relations which albuminuria bore to the puerperal state. He was struck by the expression which fell from Dr. Roberts respecting physiological albuminuria, which seemed, on the first blush at all events, to involve something of a paradox; but if there were any truth in this, or if, in this expression, there were even an approach to the truth, he thought that nowhere would there be found confirmation of the idea more strongly expressed than in connection with obstetrics. After

calling attention to the peculiar circumstances of the pregnant state, with particular reference to the condition of the blood in respect to the quantity of fibrin, diminution of the corpuscular element, and of the quantity of albumen, he considered that these changes were very significant in their bearing upon more than one theory that had been suggested in the course of the debate. He discussed Professor Hamilton's theory respecting the alteration in the specific gravity of the blood plasma, and referred to the remarkable hypertrophy of the heart associated with pregnancy, which circumstances had been pointed out by other speakers as causes of albuminuria. In as many as 20 per cent. of pregnant women, albumen was found in the urine; but while the presence of albumen in the urine of persons not pregnant was of considerable significance, albuminuria in pregnant women was of little prognostic importance. Dr. Leishman did not regard pressure on the renal veins as an important cause of albuminuria, for he had seen cases where, after the death of the fœtus, the albumen disappeared from the urine, even though it had been persistent during some time previously. He then discussed the pathology of puerperal convulsions, mentioning Braun's theory, and referred in detail to the newer theory advanced by Traube, and the still more recent one of Dr. Angus Macdonald, of Edinburgh. He then pointed out the relationship between albuminuria and puerperal convulsions, and advanced the hypothesis that there was a mutual relationship between them, or that they were dependent upon a common cause, toxic or other.

Professor Greenfield, of Edinburgh, objected to the term physiological albuminuria, until it had been more conclusively shown that the alleged condition was associated with normal function as well as with normal structure. The evidence on this point only tended to show that temporary albuminuria might be produced by various causes other than renal disease. Even this, however, was not conclusively shown, as disease of the kidney was frequently latent for a long period, and was curable. When death occurred during the presence of such albuminuria, structural changes identical with those found in

other inflammations of the kidney, though perhaps of slight degree and limited extent, were usually to be detected. This remark did not apply to all the cases of temporary albuminuria in fever. Careful microscopical examination was necessary, as very extensive disease of the kidney might be overlooked, even by experienced pathologists, in naked-eye examination alone. He next discussed the changes which were found in the kidneys in those diseases which were especially productive of albuminuria, and stated that in chronic venous obstruction albuminuria was usually intermittent, and coincident with scanty urine and with aggravation of the general circulatory disturbance. This appeared to him to be possibly due to the coexistence of carbonic acid poisoning, or to the sudden increase of pressure, and he discussed in detail the minute changes observed. In acute inflammation of the kidney, as in those of other organs, the primary changes were vascular, not catarrhal; and the occurrence of albuminuria in the early stages was sufficiently accounted for by the acute obstruction to the efferent vessel, and the associated changes in the glomeruli, although other sources might be found for the albumen. In the chronic forms succeeding acute inflammations, the Malpighian bodies were always affected to a very great extent, and there was extensive interstitial growth of connective tissue in nearly all cases, the changes in the tubules being essentially destructive. No absolute distinction could be maintained between the forms of chronic Bright's disease following scarlet fever, and those due to other causes, although, from the nature and distribution of the initial changes, certain differences were not uncommon. With regard to the cirrhotic or granular contracted kidney, it might be divided into two forms, one not essentially different from the chronic inflammation following acute Bright's disease, but distinguished by its more chronic course; the other essentially atrophic, and due to a primary degenerative change in the walls of the arteries. Thus, in all the forms, extensive changes were found in the glomeruli, and from the fact of their intimate relation with the arteries and the vascular supply to the rest of the

kidney, these changes were to be regarded as of very great importance. Various points as to the symptoms and effects produced by these diseases were discussed, and the curability of Bright's disease in its more acute forms was urged.

DR. JOSEPH COATS, of Glasgow, began by deprecating the mechanical way in which the subject was too apt to be treated. The secretion of urine and the morbid changes in that secretion were not to be regarded as merely physical problems. In regard to the function of the glomerulus, he pointed out that the process of transudation from the capillaries throughout the body generally, was not a mere filtration under pressure—everywhere the capillary wall exercised a selective power. But the glomerulus, in addition to the capillary wall, had a layer of epithelium which followed the loops of the vessels, and covered them ultimately, and this rendered the glomerulus a somewhat complex organ. In its structure, the glomerulus was compared to the alveolus of the lung where the capillary vessels were separated from the internal surface merely by a thin layer of epithelium, which, as that of the glomerulus, was like endothelium; and yet no fluid transuded here, or at most some watery fluid. The glomerulus, on the other hand, allowed water to pass through freely, probably with its salts, but prevented the passage of albumen. It was noteworthy that, while it retained serum-albumen, it allowed egg-albumen to pass; this substance, when present in the blood, soon appearing in the urine, which it reached, according to Nussbaum's experiments, by the glomeruli. Turning to morbid conditions, it was pointed out that, once the kidney-tissue was dead or seriously injured, albumen appeared in the urine. If the kidney were cut out from a living animal, and blood injected into it by the renal artery, then a fluid like blood-serum appeared in the ureters. Amyloid disease, by transforming the glomeruli and arteriolæ rectæ into a homogeneous inert substance, rendered them no longer capable of retaining the albumen, which with an excess of water appeared abundantly in the urine. Obstruction to the veins, by causing stagnation of the blood in the capillaries and glomeruli, injured

their walls, and they no longer retained the albumen, the albuminous fluid here being like that in œdema of the lungs. Obstruction of the renal artery, by depriving the vessels of their due supply of arterial blood, had a similar effect. Acute Bright's disease should always be regarded as an acute inflammation, a fact too often forgotten. Taking the lung as an example, the phenomena of acute inflammation were stagnation of blood in the capillaries and transudation of albuminous fluid, with red and white corpuscles, and this transudation was through vessels which normally allowed little or no fluid to pass through. In the kidney an acute inflammation would also produce stagnation in the capillaries and smaller vessels generally, and this implied a greatly diminished separation of water and urinary constituents. There was, however, a transudation of albuminous fluid, which took place probably from the capillaries as well as the glomeruli. Red corpuscles were also transuded, coming chiefly from the glomeruli. In regard to the leucocytes of the blood, Dr. Coats stated his belief that they were exuded more frequently than was generally supposed.

He referred to a case of his own in which during life leucocytes were so abundant in the urine as to give a deposit having the character of pus, and yet the case was one of subacute Bright's disease. After death, the appearances in the kidney indicated that the leucocytes had come from glomeruli, capillaries, and arteriolæ rectæ. It was also stated that, in scarlet fever, kidney-tissue was frequently overrun with leucocytes, which in many cases were present in extraordinary numbers. Dr. Coats expressed his belief that the cells often described as epithelium in the urine, were frequently leucocytes. In regard to chronic Bright's disease, the contrast between the state of the urine and that of the kidneys was insisted on, the water in the urine being in excess, while the glomeruli were greatly destroyed, and the urea in the twenty-four hours usually normal, while the uriniferous tubules were greatly destroyed. This was accounted for by the view that the surviving glomeruli had an excess of blood directed to them, and at an unusually high pressure. An excess

of watery urine would, therefore, pass through them, and, as the epithelium is largely destroyed, the water would escape absorption, and the urine, as it passed into the bladder, would be virtually that which escaped at the glomeruli. The absence or smallness in the amount of albumen was accounted for by the fact that the glomerular vessels were not specially affected, except by being pressed on and occluded. Dr. Mahomed's view, that increase of blood-pressure was the cause of albuminuria in this disease, was criticised chiefly on the ground that albumen was most apt to appear when the urine became more scanty, and this itself indicated rather reduction of arterial pressure. The scantiness of the urine and increase of albumen were both to be accounted for by the exacerbation of the inflammation. In regard to other cases of albuminuria, reference was made to Dr. Finlayson's remarks, according to which the presence of a poison in the blood was the cause; and it was added that poisons were most apt to produce it when they were (as cantharides) excreted by the kidneys, and so damaged their structures. Thus, in all cases, albuminuria was to be referred to damage to the structure of the blood-vessels and other tissues of the kidney, whether inflammatory or otherwise.

DR. MCGREGOR ROBERTSON, of Glasgow, thought the key to the solution of the problem of albuminuria was a physiological one. The histology of the kidney showed that there were two parts played in the normal process of urinary secretion: the first by the glomeruli, and the second by the renal epithelium. It was almost universally admitted that the process in the glomerules was one of filtration. The controversy about the nature of the filtrate seemed to him to be due to a failure to realize the nature of filtration. In this connection, he quoted remarks by Dr. Mahomed, who explained the appearance of paraglobulin before serum-albumen, in some cases, by the fact that the former was more readily dialyzed than the latter, and who believed that serum-albumen did not transude into the tubules, because of its difficulty in diffusing. Dr. McGregor Robertson pointed out that dialysis and filtration were essentially different pro-

cesses, and that the laws and results of both were quite definitely determined. The researches of Schmidt, in Poggen-dorf's *Annalen*, 1856 and 1861, were quoted to show that, in the filtrate of an albuminous fluid, albumen was invariably present; and that, in filtration, the difference between the fluid on the filter and the filtrate was always a quantitative, never a qualitative, one. He concluded, therefore, that the fluid that passed into the tubules contained all the constituents of the blood-plasma, though in vastly different proportions. The question then arose, what became of the albumen? He believed in the theory that it was absorbed by the renal epithelium. In support of this view, he instanced one result he had obtained in a research in which he was engaged, where the renal cells were paralyzed temporarily by the action of atropine, and albumen appeared in the urine, also temporarily. Accepting this as the physiology of the normal secretion, it was pointed out that the causes of albuminuria might be classified very generally as due (1) to increased blood-pressure in the glomerular capillaries, causing more albumen to filter than the cells could absorb, the excess appearing in the urine; (2) to conditions affecting the renal epithelium, preventing it from absorbing the albumen, even though there was no excessive filtration. Owing to anæmic or nervous conditions, the epithelium might be capable of less than the normal functional activity, and so a slight temporary albuminuria might be occasioned, such as had been referred to by Dr. Mortimer Granville. The same diminution of normal functional activity of renal cells might explain the so-called "physiological albuminuria," just as diminished functional activity of gastric cells might occasion indigestion, though no one would, on that account, speak of physiological dyspepsi.

DR. ROBERT KIRK, of Partick, discussed the subject of albumen tests. He objected to Heller's nitric acid test as inferior, and mentioned five others which he considered more delicate and reliable; picric, chromic, and metaphosphoric acids, potassium ferrocyanide and sodium tungstate. It was pointed out that these were most sensitive in light solutions, which could float on the surface

of the urine; heavy saturated solutions of soluble reagents, as metaphosphoric acid and potassium ferrocyanide, were distinctly inferior. Various objections to picric acid were noticed, and it was acknowledged that a mucin reaction was sometimes a difficulty in very delicate testing. This, it was shown, might be obviated by testing for mucin by a light solution of citric acid, a better precipitant of this body than any of the albumen tests; if the latter did not give a more rapid result than the former in any urine, albumen was absent, and *vice versa*. It was maintained that a mucin reaction was a still more serious objection to heat and acetic acid, and that, for this reason, it was no longer recommended by Neubauer and Vogel. It was suggested that mucin was probably sometimes mistaken for a trace of albumen in highly concentrated urines, and in the later months of pregnancy, and other conditions.

British Medical Journal.

MEDICAL ASSOCIATION OF MISSOURI.

W. A. Hardaway, M. D., St. Louis, on Electricity in the Treatment of Diseases of the Skin.—It is now about ten years since I began the systematic use of electricity, in its various forms, in the treatment of skin diseases. From time to time during this period I have published short papers on the subject; some dealing with positively ascertained facts, while others were in the nature of provisional reports. Now, at the close of a decennium of practical work, it would seem opportune to review the question in its entirety, in order that we may determine what has been accomplished, what has proved futile, and lastly, as to what may yet be accomplished in this special field of therapeutics.

A natural division of our subject is, first, "The Medical Uses of Electricity;" and, second, "The Surgical Uses of Electricity." Under these general heads will be considered the diseases of the skin in which this agent has proved serviceable, the kind or form of electricity employed, and so far as time will allow, the details of the mode of its application.

I. THE MEDICAL USES OF ELECTRICITY IN DERMATOLOGY.

In the early days of the revival of scientific electro-therapy much was expected from it in a class of diseases superficially seated, where the diagnosis could be more or less readily determined, and in which the indications for treatment were not difficult to appreciate. And again, it was only reasonable to suppose that so powerful an agent, possessing the most characteristic physiological effects, should prove of especial value in resolving infiltrations, in relieving pain and itching, and stimulating nutrition. Unfortunately these expectations have been only partially realized. Ten or a dozen years ago favorable reports were more frequent than they are now.

Personally I have made use of one form or another of electricity, and I believe with a due appreciation of the best means of prescribing it, in a majority of cutaneous diseases, and, I am constrained to say, with mostly unsatisfactory results. In many instances other plans of treatment held out better promise of success, while in others the outcome was entirely negative. I believe I am fully justified in declaring that there is scarcely a disease of the skin in which we can place our sole reliance upon the medical use of electricity, but at the same time there are numerous conditions in which the correct employment of this remedy will prove of the most material assistance.

As first pointed out by Satterlee and Piffard, the Faradic current is a very useful adjuvant in the treatment of *acne*. The positive pole is to be applied to the nape of the neck, and the negative to the region affected. I believe the galvanic current is quite as serviceable. One pole (it is indifferent which) should be placed in front of the ear, and the other passed over the eruption. I am far from endorsing Bartholow's extravagant statement that the worst cases of *acne* will get well under galvanism, if conjoined with proper attention to diet and hygiene. It will be found that other measures will be imperatively demanded.

I have tried the Faradic current in a number of cases of *seborrhœa* of the scalp with apparently good effect. The hair should be thoroughly wet, and a

moderately strong current should be passed over the scalp for ten or fifteen minutes.

Both the galvanic and Faradic currents, but particularly the former, are excellent palliatives in the distressing eruption of *urticaria*, but beyond this, as would be expected, their influence does not extend.

In the functional disease *pruritus* I have employed all manner of electrical treatment, general and local, galvanic and Faradic, but aside from temporary relief to the itching, I have accomplished no permanent good.

In the *pruritus* of *eczema* I have given the patient marked and immediate relief by galvanism, but then the relief was not so long continued as from the use of other agents. Neither have I found that eczematous infiltrations were sensibly reduced by electricity.

Both in the acute stage of *herpes zoster* and in the chronic neuralgic condition which often follows, the constant current is of especial value. I can fully endorse Duhring's statement, that the pain and eruption may often be arrested by its timely application. The moistened sponge electrodes should be directly applied to the neighborhood of the eruption, and over the course of the implicated nerves. A descending current of about ten cells should be employed; each sitting should last ten minutes or more, to be repeated once or twice daily.

All varieties of *baldness* are helped by electricity, notably in the form of Faradism.

I am well convinced that *alopecia areata* is greatly benefited by a moderately strong current applied directly to the seat of the disease.

The obscure but closely allied affections known as *scleroderma* and *morphæa*, should always be treated electrically. Marked improvement in *scleroderma* under galvanism has been reported by Piffard, Fieber, Armingaud and Schwimmer. I must confess that the only case of *morphæa* in which I made use of galvanism did not show any immediate improvement, but I believe it is a condition in which electro-therapy should be given a thorough trial.

I am not prepared to say that the diseases of the skin enumerated above are

the only ones in which electricity is useful, but the list merely includes those concerning which I feel any right to speak confidently. I could say a great deal more on this subject in a negative way, but such a course would scarcely be profitable.

2. SURGICAL USES OF ELECTRICITY IN DERMATOLOGY.

In the surgery of skin diseases electricity is an indispensable agent. In employing electricity surgically the object to be gained is mainly one of destruction. This end in many cases, but not in all, might and could be attained by other cauteries, but in electricity we possess a means which recommends itself on account of the ease and readiness of its application, and the facility with which we can control the destructive process. For this purpose the galvano-cautery is vastly inferior to electrolysis. The latter destroys tissue by chemical action, and not by the generation of heat as does the former.

In cases where electrolysis is not applicable I much prefer the thermo-cautery of Paquelin to the galvano-cautery. Therefore, in what I have to say under this head it must be understood that I refer exclusively to electrolysis.

The fully established practicability of safely and permanently removing superfluous hairs, especially from the face of women, is certainly to be regarded as one of the most beneficent contributions to modern medicine.

The proportion of bearded women in the community is greater than one unacquainted with the facts would suspect. The amount of deformity suffered by these truly unfortunate persons varies greatly; in some the growth may be limited to a few stiff hairs upon the chin or upper lip, or on the site of moles, or there may be all grades of hairiness, from a respectable mustache to a patriarchal beard. These unsexed women are practically ostracized from social life, and not unfrequently become the subjects of profound melancholia, or pronounced insanity. Of course the mental condition will greatly depend upon the age of the patient and the amount of the growth. Aside from congenital hirsuties, it is to be noted that these excessive and unnatural growths

are to be observed almost as frequently during active menstrual life as in elderly women after the menopause. The etiology is obscure.

Although the writer had the honor of popularizing this method among dermatologists, the credit of this brilliant conception must be ascribed to his friend Dr. Chas. E. Michel, of St. Louis. After many fruitless efforts to discover a means whereby the hair papilla could be permanently destroyed, it occurred to him that in electrolysis the requisite conditions would be fulfilled. The essential idea involved is, of course, the absolute destruction of the hair papilla as a result of which no new growth of hair would be formed. At the same time, in making use of electrolysis the destructive agent could not be wiped off in passing down the follicle, the extent and intensity of the destruction could be accurately controlled, and best of all, the operation being done subcutaneously, scarring would be entirely absent. This method was put into execution by Dr. Michel, in the treatment of trichiasis. Inspired by his results, I lost no time in introducing this practice into my own branch of medicine. I have now for many years been removing superfluous hair from the bearded faces of women, and it gives me great pleasure to be able to-day to corroborate every word that I have published on this subject in the past. Received with incredulity at first the electrolysis of the hair papilla is now everywhere enthusiastically practised by dermatologists.

The method of procedure now adopted by me, and believed to be the most satisfactory under all circumstances, is as follows* : A No. 13 cambric needle, or, as suggested by Fox, a dentist's reamer (from which, however, the temper should first be drawn) is attached to any convenient handle, which latter is connected to the negative wire of a galvanic battery ; a moistened sponge electrode is connected with the positive pole.

Under a strong lens held in the left hand, the patient being seated in a reclining-chair, facing a good light, the

needle is entered as nearly as possible into the hair follicle ; after this has been accomplished, and till then, the patient is told to approach the sponge (positive) electrode to the palm of the hand. The needle is not withdrawn until a slight frothing is observed around its stem, showing that the electrolytic action has been fully developed ; but to avoid shock, the sponge electrode is first released by the patient, the needle being removed subsequently, being exactly the reverse of the initial steps.

I always leave the hair *in situ*, as it is a guide for the introduction of the needle the instrument being entered alongside of it, besides being an immediate guarantee of the success of the operation ; for if the hair comes away with the very gentlest traction of the depilating forceps, a point always to be tested at once, we know that the papilla, has been destroyed ; but if force is required for its extraction, it is a sign that the follicle has not been properly entered. I have rarely known the hair to regrow when this test proved successful. By observing this simple rule, one is enabled to know at the time the success or non-success of the operation. If the hair does not come out with the feeblest traction, I reintroduce the needle time and again until it does : so that it is possible to make each electrolysis an almost absolute certainty as to the permanency of result. With the larger number of hairs one introduction of the needle generally suffices for destruction ; in some instances, however, the follicle does not run continuously with the apparent direction of the external portion of the hair, but diverges in one direction or another, thus making the entrance into or near it a matter of difficulty. In such cases the direction of the follicle must be sought for by repeated attempts. Frequently, when the follicle has been accurately penetrated, the fact is evidenced by the twisting of the hair as the needle is pushed in.

Under a strong lens (one or two-inch) it is not difficult to introduce forcibly the needle directly into the follicle ; but this is not absolutely necessary, as the requisite destruction occurs if the instrument is in its immediate neighborhood. For the purposes of the operation I generally employ about eight cells of a

* A greater part of this description is taken from my paper read before the American Dermatological Association in 1878, and published in the *Philadelphia Medical Times* of February 14, 1880.

freshly-charged galvanic battery. Each electrolysis occupies but a few seconds, the time occupied being in proportion to the number of elements used; but it should be remembered that the pain experienced bears the same relation. It may be well to say here that the amount of pain felt differs in different patients and also according to the regions attacked, and that, while it is by no means trivial, it is not unbearable, and a tolerance seems to be established after a few sittings. The immediate effect of an electrolysis is to produce an urticarial wheal around the mouth of the follicle, with a certain amount of congestion and peri-follicular exudation; in a few hours afterwards the circumscribed congestion of the tissues disappears, leaving small papules and pustules at the point of operation, which in turn leave behind them minute red cicatrices, which may remain visible for some weeks. For this reason, where the hairs are numerous, as upon the upper lip, I do not take out more than ten or twelve at a sitting, generally making the operations a week or more apart. Where there are but few hairs, situate on a less prominent region, all of them may be removed at the same visit. Minute scars are most apt to occur when it has been found necessary to introduce the needle a number of times for the same hair; but even on the lip the most marked cicatrices are not noticeable to the naked eye after a few weeks.

Like all other operations of a delicate nature, this one requires a certain amount of skill and tact only to be had by some experience in its performance; but fortunately the manipulations are easy and readily acquired, thus placing it at the disposal of any one possessing a good galvanic battery. I regard a powerful pocket or hand-lens as an indispensable adjunct to the procedure: indeed it is difficult to understand how it otherwise can be performed with satisfaction to the operator.

While it is possible to remove even very small, downy hairs, such growths scarcely ever amount to a deformity, and their destruction entails so much annoyance and labor, that I rarely ever make the attempt; but the *forte* of the operation is in the permanent removal of stiff, beard-life hairs, occupying prominent regions. The long, robust hairs on

moles are readily destroyed, and often the mole is made to disappear at the same time.

Both in simple *rosacea* and in *acne rosacea* the necessary destruction of the enlarged blood vessels may be readily effected by electrolysis, and is superior to all other methods of accomplishing the same end in the rapidity of the operation and the freedom from scarring. This practice was first suggested by the writer some years ago.* But not only may the varicose vessels be thus effaced, but I have found that the hypertrophied tissues in acute *rosacea* may be made to shrink by free puncture with the electrolytic needle. The plan of procedure is the same as in the operation for superfluous hair.

The electrolytic treatment of vascular *nævi*, especially of the erectile and pulsating variety, has long been recognized and acknowledged as valuable; but I believe that I was the first to urge the same method in the so-called port-wine mark.† Latterly, Dr. G. H. Fox has also advocated the practice as giving better results than the linear scarifications of Squire or the tattooing process of Sherwell. In port-wine marks of any extent a crown of fine needles should be employed; in smaller patches the single needle is all that is necessary. I have not seen a case in which some degree of improvement has not been manifest, and in some port-wine marks of small extent the results have been brilliant. At best, however, the operation is very tedious, and certainly has some drawbacks, but at present it is the most satisfactory at our command.

I have recently treated a well-marked and very chronic case of *erythematous lupus* by electrolysis, with a result which was very gratifying. Appreciating the good effects of multiple puncture in this disease, it occurred to me that one might accomplish as much, and more besides, by making these same punctures with the electrolytic needle. I was not disappointed; for, after the diseased patch had been carefully and repeatedly gone over, there resulted a smooth, supple scar, which was little noticeable, and a

* Arch. of Derm., Oct., 1879.

† Trans. of Am. Derm. Assoc., New York, Aug. 27th, 1879.

complete subsidence of the morbid process.

Without taxing your patience further, I will close by enumerating a few of the diseases of the skin in which electrolysis may be confidently employed, viz: pigmented nævi, small fibromata, milia, nodules of lupus, sebaceous cysts, xanthoma (Fox), warts, cutaneous horns, and some stages of epithelioma. From certain observations that I have made in regard to the action of this means in hypertrophied scar tissue, I am inclined to look upon it favorably in keloid.

In short, it may be confidently stated that, whenever it is necessary to use a destructive agent on the skin—one that is readily managed, that causes no hæmorrhage and leaves few scars—there is none better or more efficient than electrolysis.—*Trans. Med. Assoc. State of Mo.*

Miscellany.

A Curious Book has just been published in Sweden. It was written by the physician of an insane asylum, and has been set up, printed and bound by his patients.

Some of the Toxic Effects of Salicylic Acid.—Dr. Max Baruch relates, in the *Berliner Klinische Wochenschrift*, No. 23, 1883, the case of a lady for whom, on account of slight arthritic pains of a subacute character, and unaccompanied with fever, salicylate of soda, in doses of fifteen grains every two hours, was ordered. Shortly after taking the second dose, she had ringing in the ears, dimness of vision, as if a veil were before the eyes, and a tired feeling, and soon was seized with a very severe chill, lasting for an hour and a half, during which the temperature rose to nearly 105° in the axilla. After the chill, the temperature fell one or two degrees, and about an hour later, the patient broke out into a profuse perspiration. During this stage, lasting six or eight hours, the temperature gradually fell to the normal. Dr. Baruch regarded this attack as one of intermittent fever, the more confidently as the patient lived in a malarious district. The only thing about it that was not perfectly typical, was the short duration of the first and second stages. In order to

satisfy himself concerning the diagnosis, he withheld quinine, waiting for the second attack, but it did not come. About five weeks later, on account of a return of the joint pains, salicylate of soda was again ordered in the same doses. Soon after taking the second dose, the patient had another attack of chills and fever exactly like the former one, except that it was, if possible, more severe. Another case similar to this, in which, however, the symptoms were less marked, was related to the author about the same time. In previously reported cases of poisoning by salicylic acid, the symptoms were very different in character, and were caused by much larger doses of the drug. The author explains his case by the theory that even small doses of salicylic acid may so act upon the caloric centers as to cause a paralysis of the temperature depressors. He does not regard the sweating as caused by the salicylic acid, but rather by an irritation of the perspiratory centers from increased temperature.

In the *Centralblatt für Klinische Medicine*, Dr. M. Loeb, remarking upon this case, states, that similar febrile paroxysms not infrequently follow upon the hypodermic injection of morphine. He does not hold the morphine responsible for these attacks, however, but thinks that they are due to the presence of certain forms of bacteria in the solution used. He relates the following case of renal hæmorrhage consecutive to the administration of salicylic acid. The patient, a man twenty-three years of age, was suffering from acute articular rheumatism, and took nearly half an ounce of salicylic acid in the twenty-four hours. At the end of that time, the urine was found to be bloody, and contained a large amount of albumen, and numerous casts and blood corpuscles, but became normal as soon as the drug was discontinued. Dr. Gerhardt stated to the author that he had also observed a renal hæmorrhage in several cases following upon the exhibition of salicylic acid. Dr. Loeb thinks that this action of the salicylates on the kidneys is deserving of special study, owing to the fact that this remedy has recently been recommended very strongly as the best antiseptic in scarlet fever, a disease in which renal irritants ought most scrupulously to be avoided.—*Med. Rec.*

Peculiar Susceptibility to Flaxseed.

—Dr. A. J. French reports the case of a lady, sixty-five years of age, who could never make a flaxseed poultice or be in the room where one was made without immediately suffering from a feeling of fullness or swelling in the nose and throat, attended by violent sneezing. In some cases asthma followed exposure to the odor of flaxseed. When a child she used to amuse her playmates by biting a flaxseed in two and allowing one piece to lie on her lip, which would swell up at the spot where the piece of flaxseed was lying.—*The Clinique*.

Coca.—Dr. H. D. Hicks, of Boston, has used *Erythroxylon Coca* successfully to prevent and relieve fatigue; in those cases of backache accompanied by high-colored urine with excessive amounts of urates and uric acid. It renews the vigor of the intellect and relieves mental exhaustion, rendering the flow of thought more easy and the reasoning power more vigorous. It dissipates "the blues," leaving the mind calm. It destroys the cravings for alcohol.—*New York Medical Journal*.

The Use of Membrane of Egg for Skin Grafting.

—In a case of extensive burn unhealed after six years, Dr. Frank C. Wilson, of Louisville, Ky., made use of three different kinds of skin grafts, namely, from the skin of a young rabbit, from the human skin, and from the inner membrane of a perfectly fresh hen's egg. Of the three he much preferred the egg membrane as being much more readily obtained, and one egg will supply any number of grafts needed.—*Med. News*.

Visual troubles are not frequent

in mumps; the observation published by M. Jalon (*Arch. de Med. Milit.*, tome i., p. 109), is that of a young soldier who was attacked by mumps and orchitis during a short epidemic. After he had left the infirmary, he noticed that he could not see well with the right eye, and an ophthalmoscopic examination revealed the lesions of optic neuritis. Since that time the atrophy has increased, and the loss of sight has become complete. It is probable that this accident was the consequence of some intracranial mischief secondary to mumps.

Heredity in Nervous Diseases.

—Dr. Möbius, of Leipzig, has investigated the genealogies of five families through several generations, in order to obtain some information with regard to the mode of heredity in nervous diseases (*Deutsche Med. Wochensch.*, Nov. 7). He finds, among other things, that drunkenness exerts a most powerful influence on posterity, and that even the apparently healthy members of a nervous family are not normally vigorous and capable of enjoying life. He is of opinion that no one who has once suffered from a severe form of nervous degeneration ought ever to marry.

Buccola on General Paralysis in Women.

—The author says (*Lo Sperimentale*, June 1883) that Neumann's assertion that general paralysis occurs only in men is not now accepted by any but those who are ignorant of elementary clinical facts. He has himself observed fourteen cases in women in one year at the Turin Asylum, an institution that has an average of 240 patients resident. These, with one case of Prof. Morselli's, he has carefully analyzed. The ages, with two exceptions, ranged from 38 to 50 years. The predominant elements in regard to causation were cessation of the menses, excesses of various kinds, trouble and heredity. The chief characteristics of the disease in women as distinguished from men were its slow course, and dementia instead of delusions of grandeur. The average duration of the cases was between three and four years. Not one instance was observed of the form of mental disorder usually seen in men affected with the disease. Dementia was the prevailing feature of the change in mind. The author thinks this a significant fact. He believes that it shows a relative weakness of intellectual capacity in women. From such poor mental soil as women possess, only weakness can spring, he tells us, while it is a difficult thing to organize the classical delusions of the disease as seen in men. The melancholic variety of general paralysis was met with twice. Epileptiform convulsions were observed in two instances. A noteworthy phenomenon is the variation the temperature undergoes throughout the disease. The vari-

ations are never very great, ranging from 36° to 39° C. ($96^{\circ}8$ to $102^{\circ}2$ F.) A rise in temperature is accompanied by an aggravation of the clinical symptoms, and lasts usually about a day or two.

Guiata on a Case of Blennorrhagic Ophthalmia treated with Iodoform.—Neither the application of a strong solution of nitrate of silver nor frequent irrigation with carbolic solution (*Gazz. Med. Ital. Lomb.*, Oct. 27, 1883,) had any effect in arresting the rapid progress of a virulent ophthalmia; nor did Crampton's incisions prevent the participation of the cornea in the morbid process, which assumed the diphtheritic form. The application of iodoform in fine powder quickly arrested the diphtheritic process. In the membranous forms of conjunctival inflammations, iodoform is more potent than any other antiseptic; it is best applied pure, in fine powder, sufficient to fill the conjunctival cavity; in the croupous and less grave forms of conjunctival blennorrhagia, it may be applied as an ointment. This should be done at first once every day, and, as the disease abates, every second day is sufficient, the eye being afterwards covered with a pad of iodoform gauze, cotton-wool, and a bandage. If the cornea be attacked, a strong solution of eserine should be instilled. If the application of the iodoform cause pain and sensation of burning, either the iodoform is not finely enough powdered, or it is mixed or adulterated with some other substance.

At a recent meeting of the New York County Medical Society Dr. Joseph W. Howe was chosen as a delegate to the coming International Medical Congress which will meet at Copenhagen.

The East River Medical Association, at a special meeting held February 25th changed its name to THE NEW YORK MEDICAL UNION.

According the new British Medical Directory, the whole number of doctors in Great Britain is 25,038. Of these 4,417 are in London, 11,775 on the provincial list 2,206 in Scotland, 2,430 in Ireland, 1,717 reside abroad, and

2,493 are in the army and navy, the Indian medical service, and the mercantile marine.

The American Medical Association will meet in Washington on Tuesday, May 6th, 1884. The Committee of Arrangements are already at work actively and energetically in behalf of a successful and profitable session. Members preparing papers, essays, reports, etc., should forward title and synopsis of same to Dr. A. Y. P. Garnett, Washington, D. C., Chairman of Com. of Arrangements, at least 30 days before the meeting. The following is a list of officers:

President, Austin Flint, Sr., M.D., of New York.

Vice-President, R. A. Kinlock, M.D., S. C.; T. B. Lester, M.D., Mo.; A. L. Gihon, M.D., U. S. N.; S. C. Gordon, M.D., Me.

Secretary, Wm. B. Atkinson, M.D., Pa.; Ass't Secy., D. W. Prentiss M.D., D. C.

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Chairman of Section on Surgery and Anatomy, C. D. Parkes, M.D., Ill.; Secy., H. O. Walker, M.D., Mich.

Chairman of Section on Ophthalmology, Otology and Laryngology, J. J. Chisholm, M.D., Md.; Secy., J. L. Thompson, M.D., Ind.

Chairman of Section on Diseases of Children, William Lee, MD., Md.; Secy., W. R. Tipton, M.D., New Mexico.

Chairman of Section ou Dental and Oral Surgery, T. W. Brophy, M.D., Ill.; Secy., Jno. S. Marshall. M.D., Ill.

Chairman on Section on State Medicine, Deering J. Roberts, M.D., Tenn.; Secy., C. W. Franzoni, M.D., D. C.

The committee on State Medicine consists of one member from each State and one each from the Army, Navy and Marine Hospital service.

THE ÆSCULAPIAN.

VOL. I.

MAY, 1884.

No. 5.

Original Articles.

A CASE OF FRACTURE OF THE LARYNX, WITH RECOVERY.

By RICHARD C. BRANDEIS M. D.

Professor of Laryngology etc., New York Polyclinic.

Although there is considerable literature on the subject, reports of cases of fracture of the larynx are not so common that the details of the following case might not be read with interest.

Michael R., porter, aged 47, was standing on a ladder, engaged in arranging some shelves, when his support gave way, causing him to fall forward and strike violently on his neck. The blow was so forcible, that he lost his balance, and fell to the floor, where he lay unconscious for some time. His fellow workmen restored him to consciousness by dashing water into his face, and by pouring spirits down his throat. The pain and discomfort were so great, however, that he was compelled to go home for relief. In the afternoon, five hours after the injury, Mr. R. presented himself before my class at the New York Polyclinic, on Nov. 22, 1883. He was then suffering so much pain in his throat, that he was hardly able to state the above facts.

On baring his neck, a considerable abrasion of skin was found, extending from the right wing of the hyoid bone down to the right clavicle, and across to the left sterno-cleido-mastoid muscle. The right side of the neck was somewhat swollen and œdematous, and very painful to the touch. The laryngoscope being introduced, a very marked hæmorrhagic effusion was found under the mucous membrane, covering the right vocal cord and causing a decided increase in its bulk. Several ecchymotic patches on the surface of the opposite cord were also noticeable. During inspiration, the glottis opened to its normal size, but, on expiration, the cords failed to come into apposition, the chink being very

marked in the anterior commissure. In spite of forced phonation, the distance between the edges of the vocal cords was not less than 2—4 millimeters. The other parts of the larynx appeared to be unaffected. The patient's voice was very husky, and phonation was attended with great pain. He was told to drink some water. The attempt at deglutition did not prove successful, however, since a hacking cough set in, causing the mouthful of water to be ejected through the nose.

External, bi-manual palpation of the thyroid cartilage showed that the two lateral halves of the voice-box were separated in the median line. By firmly grasping the two wings of the thyroid cartilage, it was possible to bring them into contact, and when forcing them up and down a very decided crepitation was felt. This was confirmed by several members of the class. Lateral pressure upon the two halves of the cartilage and bringing them into contact in the median line, was found to produce a decided improvement in the voice of the patient. A very marked depression of the right half of the thyroid was observable, quite a deep sulcus being found, which extended from the superior notch down to the crico-thyroid membrane. The cricoid cartilage was apparently uninjured. The patient's skin was cold and clammy; pulse small, and 120 to the minute; respirations short and hurried, varying from 26 to 30 to the minute. As the patient had a beard of several days' growth, and there being no conveniences for shaving him at hand, considerable difficulty was experienced in applying a firm bandage. However, six strips of adhesive plaster, each about two thirds of an inch wide, were applied (one lapping over the other), around the neck, extending from the trachea upwards to the hyoid bone. These were then thickly coated with a layer of collodion, and after this had dried, two or three folds of a roller bandage were passed around the neck. The patient was ordered to take only cold

fluid nourishment, and to remain as quiet as possible. If any urgent symptoms set in, I should be prepared to perform tracheotomy.

The next morning it was found that Mr. R. had passed a very restless night, owing to great pain in his throat, and a continuous, uncontrollable desire to swallow. He was also harassed by an incessant, barking cough, and, in consequence, had occasionally expectorated small plugs of mucus, slightly tinged with blood.

The bandages had become loosened, and evidently exercised no pressure upon the injured parts. The two halves of the cartilage were widely separated, and crepitated freely when rubbed against each other. There was less œdema above the site of the injury, but the slightest touch caused considerable pain. The laryngoscope showed great inflammation and some œdema of the epiglottis. The patient was almost voiceless. The vocal cords were in the same condition as the day before. The œdema of the epiglottis was relieved by means of gentle scarifications with a sheathed knife, and, as there were no immediate indications for tracheotomy, it was determined to reapply the bandages, after having the neck cleanly shaven. In order to give the parts more rest, and to prevent any displacement of the fragments, nutrient enemata were ordered, and, in case of thirst, the patient was only to suck small pieces of ice. Absolute quiet in bed was enjoined. Two days later, the swelling of the neck was found to have subsided so much, that the bandages had again become quite loose; but the two halves of the thyroid, although not in contact, were much more nearly approximated than at the previous examination. Inspection showed that the inflammation of the cavity of the larynx had considerably diminished, although the right vocal cord appeared to occupy a higher plane than its fellow, and during phonation it actually came in contact with the border of the left ventricular band. This was evidently due to a contraction of the right thyrohyoid muscle, which drew the right half of the cartilage upward and backward.

Dysphonia was still very marked, and the patient suffered considerable pain during mastication and deglutition. The

feeding per rectum was continued, and a new dressing applied around the neck. In order to overcome the tendency to displacement, the patient's head was raised by two or three hard pillows, thereby bringing his chin almost in contact with the sternum.

From now on, the improvement was very rapid. On Dec. 9th, eighteen days after the injury, the bandages were removed, and it was found that the two halves of the cartilage were in perfect apposition. The voice had regained its normal timbre; deglutition was painless, and the cough had ceased entirely.

For safety's sake the bandage was reapplied and Mr. R. was allowed to resume his duties.

I saw him again on Dec. 17th, when I found that the injured parts had completely healed. The larynx presented no signs of either external or internal injury, and I discharged the patient from further treatment.

In a very exhaustive paper on "Medico legal observations on manual strangulation and death by external violence, etc.," by Alex. Keiller M.D., F.R.C.P., we find "that ordinary falls on the human larynx, are apparently not capable of producing fractures of its cartilage, and even falls from a height, and superadded force, appear to be unlikely to do so." But it has been found "that *severe pressure applied from before backwards*, so as strongly to compress the larynx against the vertebral column, or *violent blows inflicted over the larynx* by means of a *heavy body*, are sufficient to cause fractures of the larynx." In our case the fall was forward and downward, the larynx striking violently on the sharp edge of a shelf, compressing it forcibly against the vertebral column, and probably separating the two wings of the thyroid sufficiently to cause the fracture in the median line.

According to Keiller, Hunt² and Gurlt³ it would seem that ossification of the cartilages is not as important a factor as is generally supposed. Hunt tabulates the histories of 29 cases. In

¹ Edinburgh Medical Journal, Part. I., page 527 and Part II., page 824.

² Fractures of the Larynx. Amer. Journal of Medical Sciences, April 1866, page 375.

³ Handbuch der Lehre von den Knochenbrüchen 1864. Theil xi, Lief i.

these the ages are given in 15, and all but one, a female of 66, were not over 45 years of age. Five of the fifteen cases occurred in children, one of them being only 4 years old. In Gurlt's 46 cases we find that 16 cases occurred in persons varying in age from nine years to thirty. In our case the patient was 47 years of age, rather older than the majority of cases whose histories are accessible. He was a man of most excellent habits and no predisposing cause for the injury could be found. He was carefully examined, but no evidences of atheromatous vessels or any fatty degeneration whatever was noted. He indulged but moderately in the use of alcohol, and at the time of the injury was quite sober.

The prognosis, in cases of fracture of the larynx, is not very good. It varies, of course, with the severity of the injury and with the number of cartilages which are affected. Those cases in which there is bloody expectoration and emphysema, showing that the mucous membrane lining the cavity of the larynx has been lacerated, thus admitting air into the mediastinum, generally terminate fatally unless tracheotomy is performed in time. Of the 27 cases tabulated by Hunt, 10 recovered and 17 died. Of those which terminated favorably, eight had been tracheotomized, with six successful results. Four cases got well after a course of phlebotomy, rest, silence, etc., but these were all cases in which there was only a solution of continuity in the median line and probably little or no injury of the cavity of the larynx.

Our case may be placed in the same category as those just mentioned, although shortly after the occurrence of the injury, the symptoms of dyspnœa threatened to become severe enough to necessitate operative interference.

I attribute the speedy and successful termination of the case mainly to the retentive bandages and enforced rest.

No. 32, West 33rd street, New York.

INTRA-OCULAR HÆMORRHAGE AFTER CATARACT EXTRACTION; RECOVERY WITH USEFUL SIGHT.

C. R. AGNEW, M.D.

D. R., æt. 57., native of Ire land, residence, Savannah, Ga.; laborer. General health and habits good. Cataract in left eye mature, visual field good. Cataract advancing rapidly in right eye but immature.

Oct. 29th, 1883, 3 P.M.—We extracted the lens from the left eye, by Graefe's method, through an upward cut with contemporaneous iridectomy.

Ether was given, but the patient was turbulent in resisting its effects and became stertorous before his sensibility was nullified. Although the crystalline lens was large and the cortical substance abundant, unusual violence was not inflicted during the operative procedure. It was observed, however, that there was rather more hæmorrhage into the anterior chamber from the cut in the iris than is common.

As the patient emerged from the anæsthesia he vomited freely and there was much retching. Atropia, a four-grain solution, was instilled and the eyes were bandaged shut, with compresses of absorbent cotton and an over-cover of black silk.

Oct. 31st.—Dressings removed. Considerable blood still in anterior chamber. Atropia instilled, bandage re-applied.

Nov. 1st.—No pain since the last dressing. Considerable blood still in anterior chamber, atropia again instilled. On the evening of this day patient had slight pain, and it was observed that the cotton dressings on the eye which had been operated upon were saturated with blood, and that the blood trickled down the corresponding cheek. The resident surgeon renewed the dressings.

Nov. 2d, A.M.—The cotton compress again saturated with fresh blood. When the dressings were removed blood began to flow from between the eyelids of the wounded eye and down the cheek. An examination of the eye showed the wound of the cornea gaping to about the extent of two millimeters, while between its lips protruded a chocolate-colored mass which, while it resembled a clot,

also simulated a prolapsed retina or choroid, distended and discolored by blood. The anterior chamber was filled with blood, partly old, but mostly bright and fresh. There was no perception of light in the eye as tested by a common candle. We could not avoid the belief that a detachment of retina or choroid had occurred, with intra-ocular hæmorrhage. Absolute quiet was enjoined, and iced dressings were applied.

Nov. 3d.—Still some hæmorrhage from the eye. Iced dressings continued.

Nov. 4th.—Bleeding continues, dressings saturated with blood. *No pain.*

Nov. 5th.—Hæmorrhage continues to the extent of discoloring the dressings as re-applied.

Nov. 6th.—Hæmorrhage diminishing.

Slight inflammatory reaction in the wound and neighboring parts of eye.

Nov. 7th.—Hæmorrhage ceased.

Nov. 8th.—Improvement continues.

Nov. 9th.—Anterior chamber clearing; wound closing; slight iritis; no pain; perception of candle-light returned.

Nov. 10th.—Anterior chamber restored; bloody sediment in it.

Nov. 12th.—Keen perception of daylight.

Nov. 14th.—Counts the observer's fingers.

Nov. 18th.—V. = 4-200, with + $\frac{1}{4}$ glass; eye clearing up.

Dec. 11th, 1883, returned to Savannah, vision 8-200 with + $\frac{1}{4}$. Anterior chamber restored. Coloboma somewhat reduced and blocked by a membrane. The latter prevents scrutiny of the fundus; field of vision good, and no area of blindness, as would have occurred had any portion of the retina or choroid been and remained detached. This case is entirely unique in our experience, and it is interesting to speculate upon the origin and cause of the hæmorrhage. The man was not of a hæmorrhagic diathesis, as his life's experience proved. He had often had more or less deep wounds without undue bleeding from the same. Moreover, we have since done a preliminary iridectomy on the right eye, unattended by any marked peculiarity except that the bleeding into the anterior chamber from the cut iris has been slow in being absorbed. That the source of the hæmorrhage was a considerable detach-

ment of retina or choroid we cannot now admit. It is possible to conceive of a case of partial detachment of the choroid or retina near the ciliary body, *ora serrata*, but the detachment even in that region could not include any but the most scanty area to be compatible, with such a recovery of vision and completeness of visual field. Had the chocolate-colored mass observed to be prolapsed in the wound been choroid or retina, we would not have expected it to recede from the wound so quickly and the coloboma to be left with no other obstruction than a membrane like that which so often forms in cases of iritis following extraction. The membrane, in this case, was obviously composed of lens capsule, remains of the clot, and, possibly, slight exudation, the iritis never having been active. We are led to the conclusion that the chocolate-colored substance protruding from the wound was a clot, which having formed in the anterior chamber from an early hæmorrhage after the extraction of cataract, was partly delivered through the corneal wound when fresh bleeding began to occur on the second day. That this clot was bent upon itself and partly pushed out in a folded form, so that its smooth surface simulated in shape a detached and blood-engorged knuckle of retina or choroid lying in the wound.

This clot broke up and passed off in the current of fresh blood. The source of the blood was possibly the cut sides of the coloboma, or what is more probably the ciliary body or attached border of the cut iris. Some anomaly in the distribution of vessels there might possibly have existed, a considerable arterial trunk extending further than usual from the ciliary body into the iris at the point at which its attached border was cut.

The patient returned to the Hospital in March 1884, and on the 24th of that month we placed him under ether, and endeavored to remove the membrane from his pupil by means of a sharp hook. The operation proved successful beyond our expectations. The eye recovered without inflammatory reaction. The vision of the eye was tested for the last time on May 1st, when it was found to be 20-50 with + 1.3 $\frac{1}{2}$, and with + 1.2 $\frac{1}{4}$ he read Jæger No. 2 at a distance of six inches.

GERMAN HOSPITAL OF THE CITY OF NEW YORK.

SERVICE OF DR. A. G. GERSTER.

Reported by Dr. H. MOHR, House Surgeon.

I. THE ANTISEPTIC METHOD PURSUED IN THE GERMAN HOSPITAL.

Before an operation is begun the parts involved in it are thoroughly cleansed by the nurse. This is done in the ward and with the aid of soap, a brush and a razor. The parts are then mopped with ether and a five per cent. solution of carbolic acid, after which they are covered with towels soaked in a $2\frac{1}{2}$ per cent. solution of this acid, the applications being changed every ten to fifteen minutes. Immediately before the operation is begun, ether and a 5 per cent. solution of carbolic acid are again used. The operator, his assistants and all the persons engaged at the operation thoroughly disinfect their hands.

A solution of 1 part of corrosive sublimate to 1,000 parts of water is usually used to irrigate the wound. In cases of fistulæ or abscesses of long standing the strength of the solution is increased to 1,500. Catgut, prepared according to Kocher's formula, is used for ligatures and sutures. The catgut is soaked for 24 hours in oil of juniper, and then put into a solution of one part of corrosive sublimate to 500 parts of absolute alcohol. Fresh wounds are dressed, according to Neuber, with bags made of gauze and filled with sawdust, the bags as well as their contents having been soaked for 48 hours in a solution of one part of sublimate to 500 parts of water and then dried. The cheese cloth used for dressings, after having been boiled with a solution of caustic soda, washed in water and dried, is soaked in a watery solution of the bichloride (1 to 500) for 48 hours. The dressings are usually left undisturbed for ten days to two weeks and are changed only when there is a special indication, such as rise of temperature or penetration of the secretions to the outer surface of the dressing. Even in such cases in which there was no union by first intention under the first dressing, the pus secreted has no odor, the patients feel well and do not show any symptoms of septic infection.

In spite of the free use of the bi-

chloride for irrigation and in the preparation of the cheese cloth used for dressings, only two cases of poisoning have occurred in the hospital during the term between January 1st and May 1st, 1884, and these two have been only slight. One was that of an anæmic woman who had one breast amputated, and the other that of a man on whom resection of the knee had to be performed.

II. Extensive Necrosis of the Right Parietal Bone, in Consequence of Suppurative Inflammation of the Middle Ear.—

F. B., a lad eighteen years of age, was admitted to the hospital December 17, 1883, on account of a purulent discharge from his right ear and intense headache, from which symptoms he had been suffering for several days previous to his admission. The tympanic membrane of that ear was found to be entirely destroyed except a small remnant above. There was profuse otorrhœa. The region of the right mastoid process was slightly swollen and very tender. His temperature was above the normal and for the next few days it continued to rise and the headache increased. The region of the mastoid process showing fluctuation, Dr. Simrock, under whose charge the patient was at first, made an incision on the 21st of December, and evacuated a considerable quantity of pus. The bone itself appeared to be healthy. On the 24th the incision was enlarged. The mastoid process now showed a defect, through which fluids injected into the ear would flow out, and *vice versa*. The otorrhœa diminished under suitable treatment, but the incision showed no tendency to heal.

On February 10, 1884, there was a sudden rise of temperature, with intense headache and vomiting. Dr. Simrock immediately opened the mastoid process with a chisel, but the substance of the bone proved to be sound. The febrile symptoms continued, and on February 13th, fluctuation was made out in the right parietal region. The patient was now transferred from the ear ward to the surgical department, where Dr. Gerster made a free incision over the parietal bone, which was denuded of its periosteum to a considerable extent. A large quantity of offensive pus was dis-

charged, and the abscess cavity was found to communicate with the wound over the mastoid process.

A drainage tube was inserted in such a way as to connect the two cavities. The wounds were cleansed and dressed every day. During the first few days the discharge was very profuse and offensive, but improved in the course of time. The incision made over the mastoid process healed, but the one in the parietal region did not show any tendency to do so.

On March 19th a loose piece of bone was felt at the posterior lower angle of the parietal bone. The secretion of pus had increased for several days past, and its odor had again become offensive. On March 20th the patient was anæsthetized, and the right parietal bone laid bare by a free incision. The posterior lower angle of the bone was found to be necrosed in its whole thickness. When it was removed, the thickened and hyperæmic dura mater lay bare. Between it and the anterior margin of the defect in the bone was a small collection of pus. The remainder of the parietal bone was to a considerable extent denuded of its periosteum.

The wound was dressed with iodoformized gauze and progressed satisfactorily. Forty-eight hours after the operation, the dressings were changed for the first time when a few loose splinters of bone were removed. The wound granulated nicely. After this, the dressings were changed only once a week. On the 16th of April the patient was discharged cured.

III. THREE CASES OF HERNIOTOMY.—The following three cases may serve well to illustrate the importance of the early recognition of, and of prompt operative interference in cases of strangulated hernia.

CASE I.—*Incarcerated Direct Inguinal Hernia of Right Side.*—Mr. E. B., æt. 33, was admitted to the medical department, then under the charge of Dr. A. Jacobi, February 14, 1884. Four days before he had been taken with violent colic, nausea, and vomiting. The vomiting occurred spontaneously as well as whenever he attempted to take any nourishment. The bowels were constipated and had remained so in spite of various laxatives which were adminis-

tered previous to his admission to the hospital. He has never been ruptured.

Condition on admission.—Patient is a man of medium stature, well nourished, complexion pale, eyes sunken, anxious expression of face. Hiccough and vomiting of masses tinged with bile and having a feculent odor. Abdomen distended evenly and to a moderate degree, not tender to pressure. No tumor can be felt on palpation. There is nothing abnormal in the organs of the chest. Liver and spleen not enlarged. The right inguinal canal patulous, so that the finger can easily be carried as far as the inner ring. Left inguinal canal also patulous, but not so wide as the right. Nothing abnormal could be found in the region of the femoral canals. Temperature normal. Injections high up into the bowel were used, but without avail.

April 17.—A slight fulness was noticed in the region of the right inguinal canal. This was thought to indicate an incarceration in that neighborhood, and after consultation with Dr. Gerster, Dr. Jacobi proceeded to operate under antiseptic precautions, Dr. Gerster assisting.

The patient was anæsthetized and an incision made, beginning from the region of the right external inguinal ring and extending upward and outward for about two and a half inches. After cutting through the skin and the superficial fascia, a yellowish white sac presented itself, which was cut into as far as the internal ring. It contained some sero-sanguinolent fluid. A very small discolored knuckle of intestine was found incarcerated at the inner ring. After cutting the transverse muscle and the peritoneum above the inner ring the incarcerated portion could be pushed back into the peritoneal cavity without any difficulty. The hernial sac was then excised and the inner ring closed by a continued suture of catgut. An absorbable drainage-tube having been introduced, the skin was united by a similar suture. A solution of corrosive sublimate, 1 to 1,000, was used to irrigate the wound, which was covered by sublimated gauze.

There was absolutely no febrile reaction, and the patient progressed toward recovery without any interruption. For three days after the operation opium

was given in order to continue the constipation of the bowels. Liquid diet until February 28. On that day the dressings were removed for the first time, and the entire wound was found to have healed by first intention. The patient was dismissed March 16, 1884.

CASE II.—*Incarcerated Oblique Inguinal Hernia of Right Side*.—F. H., a laboring man, sixty years old, was admitted April 6, 1884. He has had reducible inguinal hernia of the right side for four years, and had been wearing a truss. On the day of his admission he neglected to apply it, and while at work, was suddenly taken with colic, nausea and vomiting. He then noticed that he could not replace the rupture. Upon admission, his countenance wore an anxious expression. There was hiccough and vomiting. The right side of the scrotum was occupied by a firm mass which extended as far as the external inguinal ring and gave a dull percussion sound. The abdomen was not distended and not tender on pressure. Pulse 60, small. He was immediately put under the influence of chloroform and efforts were made to reduce the hernia by taxis. These efforts did not succeed, whereupon Dr. Gerster at once proceeded to perform kelotomy.

A free incision was made over the swelling and numerous bleeding vessels were carefully tied. The hernial sac was found not to be adherent. It was opened and a considerable quantity of serum escaped which had no perceptible odor. The walls of the sac were smooth. A slate-colored knuckle of small intestine, with its mesentery, was found to constitute the hernia. The constriction was at the external opening of the inguinal canal. This was easily overcome by a few incisions, and the hernial protrusion was replaced without any trouble. The sac was now detached, its aperture communicating with the peritonæal cavity closed by a tobacco pouch suture and the sac itself removed. The pillars of the external inguinal ring were united by a few interrupted sutures. The incision of the integument was closed by a continuous suture, drainage being obtained by decalcified bone tubes. The wound was dressed

with a cushion made of sawdust soaked in a solution of corrosive sublimate.

Within twenty-four hours after the operation a considerable quantity of flatus passed. During the first few days he was somewhat restless, his general condition otherwise was satisfactory. In the evening of April 7th his temperature was 101.3. In the morning of April 8th it rose to 102.1, and fell to 101.3 in the evening of the same day.

On the following day he had a spontaneous evacuation of the bowels, being the first after the operation.

On April 10th the dressing, which had become loose and disarranged, was changed for the first time, when the deeper parts of the wound were found to have healed entirely by first intention. There were a few granulations in those places where the drainage tubes had been introduced.

The wound was dressed with emplastrum hydrargyri.

On the 21st of the same month the patient left his bed. In the evening of the same day his temperature suddenly rose to 103.4. His tongue was coated; there was anorexia and vomiting. The wound, however, looked well, and there was no tenderness on pressure over the abdomen which was not distended. The temperature continued above the normal until the evening of April 25th, after which date it fell to the normal standard. The patient felt well, and was discharged April 30, 1884. The region of the external inguinal ring was occupied by a hard plug shaped mass which did not permit any protrusion of the bowel on coughing or straining.

CASE III.—*Incarcerated Femoral Hernia of the Right Side*.—Mrs. H. B., æt. 47, was admitted to the surgical department on April 18, 1884. About noon of the day previous, while attending to some business in the city, she was suddenly taken with severe lancinating pain in the right groin, nausea and vomiting. She went home and noticed a small tumor at the seat of the pain. A similar swelling had been there once before, but had yielded to pressure without much trouble. This time, however, her efforts to reduce the protrusion were not successful, neither were those of a physician whom she had called in. The latter advised her to go to the hos-

pital at once. His advice was not carried out until the afternoon of the following day. Upon admission she presented a well nourished appearance. There was hiccough and frequent vomiting. The upper portion of Scarpa's triangle of the right side was occupied by a hard modulated tumor the size of a pigeon's egg and yielding a tympanitic percussion sound. Temperature normal, pulse slow and strong. She was anæsthetized with chloroform and taxis tried, but without success, whereupon Dr. Gerster at once performed herniotomy. After dividing the skin and the superficial fascia the thickened hernial sac was laid bare. This being incised, some bloody serum escaped, and the vermiform process and a knuckle of distended small intestine was discovered. The color of the vermiform process was black, and that of the intestine livid. Reposition could be effected only after repeated and ample incisions into the mesial portion of the constricting ring. During the efforts at reposition a rupture of the wall of the softened intestine took place. The small opening was at once closed by a Jobert's suture. The gangrenous vermiform process was tied off, and the pedicle cauterized with the thermocautery. The hernial sac was excised and the neck of the sac stitched together. The wound of the integument was then closed by a continued suture, rubber drainage tubes were introduced and a dressing similar to that in Case I. applied.

The vomiting continuing after the operation, nutrient enemata were given. The abdomen was not distended nor tender on pressure. The evening temperature on April 19th, as well as of the following day reached 102. The patient was very restless. At noon of April 26th, a week after the operation, the temperature suddenly rose to 103.2, the abdomen became distended, very tender upon pressure, and the vomiting increased. The patient became slightly delirious. In the course of the afternoon of the same day the dressings were changed, when the entire wound was found to be gaping. She died April 27th, in the morning. No post-mortem.

The cause of death seems to have been necrosis of gut and perforatal peritonitis.

IV. COMPOUND DISLOCATION OF THE THIRD PHALANX OF THE THIRD FINGER.—J. B., æt. 12, was admitted March 29, 1884, suffering from this injury, he having fallen on his left hand while it was in an extended position. There was an opening on the ulnar aspect of the joint between the second and third phalanx of the third finger. The third phalanx was standing upon the dorsal surface of the head of the second phalanx. Efforts were made to reduce the dislocation while the patient was under the influence of an anaesthetic, but without success. Dr. Gerster then made a longitudinal incision on the radial aspect of the injured joint. It was then found that the tendon of the *flexor digitorum profundus* had slipped upon the dorsal surface of the head of the second phalanx. The tendon was replaced into its normal position, still the reduction of the dislocated phalanx could not be effected. It was finally accomplished after the elimination of a shred of the dorsal part of the articular capsule.

The wound healed by first intention, under a single dressing, which was removed on the eighth day.

Selections from Journals.

Can the Sex of the Child be Pre-determined?

This question, always one of great interest, seems to be receiving all the more attention in these later days, when it would seem to be advisable that a change be made in the proportion existing between the sexes. In only a few of the newer sections of this country do males preponderate, while in the older settled communities there are thousands of women who are compelled to forego matrimony through sheer lack of a sufficient number of males to go round. The last census shows such a large preponderance of females in the population of the whole country as to attract the attention, if not to excite the alarm of the political economist. The cause of this superabundance of females we do not remember to have seen hinted at—whether it lies in an excessive number of births or is traceable to a "survival of the fittest." Whatever the

cause may be, it would seem to be very desirable that some means of equalization be devised, provided it could be done consistently with a proper standard of morality.

Of late years breeders of cattle have sought to determine some physiological law through which they might be able to produce at will such proportion of males and females in their herds as they might desire. In the case of the human being, however, the conventionalities and the proprieties of life, to say nothing of the bearings which the question has on morality, have prevented all experiments in this direction. The question has an interest for the physician, however, only in its physiological bearings. It is not for him, as such, to decide the moral question involved in the application of such physiological truths as may be discovered by experiments with the inferior animals, to the case of man.

The Medical and Surgical Reporter reproduces from *Centralblatt f. d. Med. Wissensch.* the report of observations made by Dr. K. Düssing, undertaken with a view to furnishing an answer to this important question :

Fiquet made first the observation on cattle, that those animals that sexually were very much occupied, produced more individuals of their own sex, and D. explains this by saying that the male whose genital apparatus is frequently used, is provided with fresher sperm, so that fecundation ensues with comparatively young and active spermatozoa. In such a case more male offspring are produced ; while a male whose sexual organs rarely perform their function, will give rise to more female offspring, because his spermatozoa are older, weaker. In the female, the same holds good, the ova being earlier (fresher) fecundated, and a predisposition to the female sex takes place. As a natural consequence, it follows that the more there is a want of individuals of one sex, the more their sexual functions are required—the quicker, the younger their sexual product is made use of—the more members of that sex will be born. It is simply the law of nature to propagate the species.

The same effect as sexual over-exertion is also produced by deficient nutrition, if the same demands are made upon

the genital apparatus. Weak bulls paired with vigorous cows produced invariably male calves, while weak cows paired with vigorous bulls gave mainly birth to female calves (Tellari and Fiquet).

Next of importance is the age. At the time of the greatest sexual power, the individual of each sex never transfers his (or her) sex to that of his (or her) offspring, or does at least much less so ; in most human families there are then found the most boys if the husband is much older than the wife. (Hofacker, Sadler). It shows the intention of nature to produce more individuals of that sex which threatens to die out ; the weaker, the older, the propagator, the more care nature takes to have his sex propagated.

Thus far the influences concern one sex. In case the disturbances of nutrition affect both parties the rule holds good, that where there is a superfluity of nutrition the reproduction is stronger, where a want it is weaker. The genital is first influenced by nutrition (Darwin). But it is especially the female who is more dependent upon nutrition, probably because she has to care for the bringing-up of the offspring. The logical conclusion is, that in case of superfluity of nutrition more females are born, in case of want more males. Thus Ploss found that in the same ratio as the price of provisions advanced, the number of male children increased. Or may not the cause be the following? It is the male that has to work hard ; it is the male that suffers soonest by bad nutrition ; the male, therefore, becomes soonest the weaker ; therefore the result.

Laudvis procured from thousands of very young caterpillars of *vanessa*, *urticæ*, males or females, whatever he preferred, by nourishing them badly or well. In some of the lower animals, the females find their nourishment mainly in summer, the males in winter. In these more females are born in summer, the males in winter.

Düssing draws from these observations the conclusions : the sexual relation regulates itself by the property of animals and plants to produce that sex in greater numbers whose relatively greater augmentation is profitable for the propagation of the species. Even an anomalous sexual relation may benefit under special circumstances the propaga-

tion. The sexual difference may rest in the unimpregnated ovum (for instance, tendency of young ova to female sex), or the sex is determined at fecundation (young spermatozoa, males), or the nutrition (strength, age, food) decides.

Although these theories find an undeniable proof in observations and experiments made on animals (and some on human beings also), we have to be very cautious in admitting their truth. Other factors, at present unknown, probably determine, besides those mentioned, the sex of the foetus; it is even doubtful whether the latter is already definitely decided at fecundation, and whether later influences may not have their share in ordaining the sex.—*Medical Age*.

Bufalini on Viperine Poison.

G. Bufalini records in the *Rivista di Chimica e Farmaceutica*, December 1883, a series of experiments on the nature of the poison of the viperine snakes in contrast with that of the colubrines. He recalls the experiments of Fayrer on the poison of *Naja tripudians*, by which it was shown that the blood of animals poisoned by that snake was capable of poisoning another animal when it was injected beneath the skin, while, on the other hand, no such effect was produced if the blood of an animal killed by a poisonous alkaloid were used. An opportunity of testing, by similar experiments, the action of blood taken from a fatal human case of viper-poisoning having occurred, Bufalini has tried the effect of intraperitoneal injections of the blood on rabbits to determine the question whether the action of the viperine poison resembled that of the colubrine *Naja tripudians*, or whether, as Albertoni has stated, it was akin to that of an alkaloid poison. In order to prolong the experiment and to ascertain whether any peculiar form of bacillus was developed, a series of animals was employed, the blood from the first rabbit being injected into the peritoneum of the second, and so on. In the first experiment, the blood from the patient who had died from the effects of the viper-bite, was injected into the peritoneal cavity of the first rabbit; it had been taken from the inferior vena cava and was abnormal, the leucocytes being granular and massed together, the

red corpuscles distorted and pale; there were no bacteria. In twenty-four hours no toxic symptoms developed; some blood from the first rabbit was then defibrinated and injected into the peritoneal cavity of a second, and again no symptoms of poisoning occurred. In a similar manner the blood of this rabbit was injected into the peritoneum of a third with negative results. This blood was examined microscopically, and found to be normal in appearance. The series of experiments concluded with the injection of a fourth animal, with similarly negative results. Bufalini concludes that these experiments confirm the opinion of Albertoni that the viperine poison is a true poison resembling an alkaloid in its action, and therefore differing from that of the colubrine *Naja tripudians*.—*British Med. Journal*.

Dr. Becker on the Micro Organism of Acute Infectious Osteomyelitis.

Dr. Becker has made, in the laboratory of the Berlin Imperial Sanitary Office, a series of important experiments on the micro-organisms discovered by Schüller and Rosenbach. He collected pus from five cases of acute osteomyelitis in which the abscesses had not been opened, and cultivated the micrococci contained in it on sterilized potatoes, coagulated serum, and gelatine-peptone. In the latter case, the pus was introduced by means of needles into the mass, which was then kept at the temperature of the room during three to five days. After that time, the puncture made by the needles assumed the appearance of white streaks, around which the gelatine liquefied gradually and took an orange-color. After a few days more, the mass gave out a smell like sour paste, and the microscope revealed the presence of large numbers of micrococci, having the same appearance as those found in the pus. A small quantity of the mass was mixed with sterilized water and injected into the peritoneal cavity of some animals; they died in a very short time of acute peritonitis. The same fluid injected into the jugular vein caused acute septicæmia and death; but nothing abnormal was found in the bones in either case. Dr. Becker then injected a small quantity of the same fluid into the jugular vein of fifteen rabbits, after having,

some days before, fractured or bruised the bone of one of their hind legs. On the day after the injection, weakness and loss of appetite were noticed; but after a short time the symptoms passed away, and the animals seemed to have recovered. At the end of the first week, however, a swelling formed at the seat of the bruise or fracture, the animals lost flesh, and died after a few days. On dissection, large abscesses were found around and in the bones, and in several cases metastatic abscesses had formed in the lungs and kidneys. Numerous colonies of micrococci were discovered in the blood and pus of the animals upon which the experiments were made.—*British Med. Journal*.

Dr. James A. Lindsay on a Case of a Remarkable Eruption Following the Administration of Iodide of Potassium.

Ellen S., aged 58, came to the extern department on Saturday, January 12th, complaining of paralysis of the right arm. She was a fine, healthy-looking woman, the mother of seven children, and, to use her own words, she "had never known pain or ache in her life," and had no recollection of having ever suffered from any serious illness. The paralysis of the arm, which was of some weeks' standing, had come on gradually, and the patient could assign no cause for it. There was no history or evidence of pressure upon the nerves, no ground for suspecting hysteria, no atrophy of muscles, or other evidence of disease of the cord. The diagnosis being thus obscure, I followed the time-honored custom, and put the patient on iodide of potassium, ordering half-ounce doses of an eight-ounce mixture containing one drachm. The quantity of iodide in each dose was thus $3\frac{3}{4}$ grains.

The patient again presented herself after the lapse of ten days on January 22d, and stated that the medicine had brought out a strange rash on the skin. On examination, I found a very remarkable condition. On the arms and shoulders, the patient was marked over with a number of reddish-purple rings, rather larger than half-a-crown. In the center of each ring, the cuticle was broken and shriveled, as if from the drying up of a blister. The rings were very uniform in

size, perfectly circular in outline, and looked as if they had been produced by the stamp of a dye. The history of the case was very carefully taken by one of my clinical clerks, Mr. A. W. Kerr, and was as follows. The patient took one dose of the medicine on the Saturday night after her first visit to the hospital, and another dose next morning. Immediately after the second dose, she felt very sick, and went to bed. A severe headache set in, accompanied by an intense sensation of itching in the skin, which began between the shoulders and spread rapidly thence over the trunk, upper extremities and face. When she scratched the parts affected, she experienced a feeling like the stinging of nettles. Following the itching there came an eruption of "blisters," compared by the patient to potato-apples. Each blister was surrounded by two bright red concentric rings, the outer being about as large as a crown-piece, the inner somewhat smaller. Each spot with its encircling rings was said by the patient to look like a "flower." With the exception of two spots on the left thigh, the lower limbs escaped, but elsewhere the body was quite covered with the eruption. On the face, the spots were close round the eyes and mouth, and were even in the nostrils. She suffered severely from sore-throat, and her son, on looking into her mouth, "saw lumps hanging down." There was little, if any, nasal or conjunctival catarrh. The headache, heat of the body, and prostration were intense.

The patient naturally felt much alarmed, and thought she had been poisoned. She sent her son to the druggist who had filled the prescription, but he assured him that the medicine was all right, and said that she should continue to take it, but advised that she should diminish the dose. This the patient did, being encouraged by the fact that she felt her arm improving daily. At the end of a week, while she was still taking the medicine, the eruption began to disappear; and when she presented herself, for the second time, at the hospital, the blisters had dried up, and only the rings still remained. A very extraordinary feature in the case was the fact that the catamenial flow, which had been absent for twelve years, reappeared and con-

tinued during the greater part of the week during which she was taking the iodide.

I visited the patient at her own house on Saturday, February 2d, and found her almost quite well. The paralysis had quite disappeared and she was evidently much impressed by the fact that her arm, after being paralyzed and useless for fourteen weeks, had apparently been quite cured by one bottle of the medicine. The skin had almost resumed its normal appearance. The rings had quite disappeared, and, except a little roughness and reddening of the skin, nothing remained of the formidable eruption which had caused the patient such great and not unnatural alarm.

REMARKS.—The first remark I have to make on the above case, is that I think there is no reason to doubt that the eruption was due to the administration of the iodide. There was no trace of eruption present when the patient first presented herself. She had always been healthy, and was perfectly well, except as regards her paralyzed arm. Then the eruption came out after two doses of the medicine, and quickly attained its maximum, began to decline when the dose of the drug was reduced, and disappeared altogether when it was entirely stopped. We have the further facts to consider that many varieties of cutaneous eruptions have been universally attributed to the use of the iodide, and that recently several cases of an eruption, closely resembling that present in this case, have been described by such an eminent authority as Mr. Jonathan Hutchinson.

It is more important to describe the physical characters, and to understand the clinical history of this eruption, than to give it a definite name. It is perhaps best simply to rest content with pronouncing it a bullous eruption due to iodide of potassium, rather than to identify it with any specific variety of dermatitis. It was evidently quite distinct from the ordinary iodide eruption, which, so far as physical characters go, is a variety of acne. It was not an urticaria—the large size of the bullæ, the encircling rings, and the severe constitutional symptoms being sufficient to distinguish it from that disease. Probably some of the cases which were described some

years ago by M. Bazin, of Paris, under the name of "hydroa," were really identical with the eruption which appeared in this patient.

The practical deduction to be drawn from the severer forms of iodide-eruptions is that their appearance shows a marked susceptibility to the action of the drug, and calls either for greatly diminished doses, or for its entire suspension. Mr. Hutchinson has seen several cases where persistence in the drug was the cause of death, but it is more usual for tolerance to be quickly established. Mr. Hutchinson believes that those patients who quickly show signs of extreme susceptibility to the iodide will be found to derive the same benefit from very minute doses as others do from the usual three, five, or ten grain doses, and adds that he has repeatedly cured tertiary ulcerations by doses of half or one-third grains of iodide in patients for whom iodide had been believed to be a poison even in the smallest quantities. The whole question of dosage in reference to iodide of potassium is one on which very eminent authorities have gravely differed. It is remarkable that, in the present case the patient had taken only seven and a half grains of the drug before violent symptoms of poisoning set in. When we remember how hundreds of patients go on taking ten, twenty, or even sixty grains of iodide of potassium daily for weeks and months without an unpleasant symptom, except perhaps a little touch of gastric irritation, the case teaches us a lesson as to the important part idiosyncrasy may occasionally play.

This patient had evidently other symptoms of iodism, in addition to the eruption; but on these I need not dwell.

It is a singular fact that in this case the drug brought back the menstrual flow after a lapse of twelve years. Whether this was merely a result of the profound constitutional disturbance present, or whether the iodide can be credited with any emmenagogue properties, I must leave for others to decide.—*British Med. Journal*.

Pettenkofer on Coal-gas Poisoning.

As is well known, Professor von Pettenkofer has been engaged for many years in investigating the connection

between the varying conditions of the soil and outbreaks of disease; and one of the most telling illustrations which he has adduced in support of such a view, has been the entrance of illuminating gas into the basement of houses as a result of leakages often situated at considerable distances from the affected rooms. The elucidation of this matter has led the distinguished professor of hygiene at Munich, and his pupils, to inquire very minutely into the question of poisoning by coal-gas in the abstract; and his lecture on this subject formed one of the most interesting of the series of addresses which were delivered in connection with the International Health Exhibition recently held at Berlin.

In the January number of *Nord und Süd*, Dr. von Pettenkofer has published a concise summary of his own and of his pupils' observations, which will be a welcome addition to our literature on this subject; and we only regret that space will not permit our doing more than drawing attention to some of the salient features of his paper. He points out that the air of rooms may be vitiated by gas either in its crude state, or a state of combustion. When gas is burnt, the air of the room is not altered in any way other than it is by the respiratory process of healthy men; it gives off carbonic gas, water and heat, and consumes oxygen. The flame of a single stearine candle contributes as much heat to a room as one man, it consumes almost as much oxygen, it contributes more than half the amount of carbonic acid, and a third of the amount of aqueous vapor. A single gas-flame, which is about equal to twelve candles, augments the temperature of a room as much as eight men, contributes as much carbonic acid as three, and nearly as much aqueous vapor as five, whilst it consumes almost as much oxygen as six men. These facts make it very obvious why it is that a crowded room, when lighted with gas, becomes so much more unwholesome than it does when frequented by an equal number of persons in daylight. As compared with candle-light, however, gas is to be looked upon as a hygienic improvement. In proportion to the amount of illumination, gas heats and vitiates the air of a room less than candles, for twelve candles give

rise to 336 grammes of carbonic acid per hour, against 164 grammes contributed by a gaslight of the same brilliancy, and consume 348 grammes of oxygen against 200 grammes consumed by a coal-gas flame.

It is thus seen that gas when burnt in a room has the same effect upon the quality of the air as the breathing of a crowd of people; but an escape of gas is a different matter, for, in its unburnt state, it is a powerful poison. Instances of such poisoning are by no means unfrequent; and, strange to say, the greater number have taken place in houses where gas had never been laid on. Several very striking illustrations of this are given in the paper, one of the most instructive having occurred not long ago at Roveredo. A family, consisting of father, mother, and two grown-up daughters, inhabited the ground floor of a house. One morning the two girls awoke feeling ill, and with a severe headache, but they recovered during the day. This experience was repeated on the second and the third night, when it occurred to the mother that possibly a heated stove in the girls' room had been the cause. On the fourth night the stove was not kindled, and the mother decided to sleep in the same room as her daughters. The door not having been opened on the following morning, a search was made, and it was found that all three persons lay insensible in their beds; the two girls were quite dead, and the mother died a few days afterward. A canary was also dead in its cage, and a dog lay senseless on the floor. There was no gas laid on in the house, but it was found that a pipe leaked in the street about 35 feet from wall of the house. In some of the instances cited the leakage was found to be more than 100 feet from the affected dwelling.

Orfila's experiment demonstrated that the poisonous property of coal-gas was, in the main, due to the presence of carbonic oxide, about ten per cent. of which is contained in it; and some experiments conducted by Gruber, in Pettenkofer's laboratory, went to show that animals which were ascertained to be peculiarly sensitive to an exceedingly small admixture of carbonic oxide with

the air which they breathed, were nevertheless able to withstand a large amount of illuminating gas from which the carbonic oxide had been eliminated. It is, consequently, greatly to be desired that some practicable method, workable on a large scale, might be devised by which this carbonic oxide could be removed from coal-gas, just as means have been devised for getting rid of sulphureted hydrogen by hydrated peroxide of iron, and of carbonic acid by slaked lime. Carbonic oxide affects the blood-corpuscles by displacing the oxygen in them and forming a combination with their hæmoglobin—a condition which, even to an extremely limited extent, is incompatible with health. Gruber, however, has shown, by experiments on himself and on animals, that the poison is not cumulative—that it is not the duration but the degree of concentration which is of the greatest moment. A mixture of one part of carbonic oxide per 1,000 of air produces decided symptoms of poisoning, and a mixture of over four per 1,000 may be fatal in the course of 30 to 60 minutes. Primarily carbonic oxide appears to affect the blood, but the symptoms are manifestly due to the action of the altered blood on the brain and spinal cord. The respiratory center in the brain appears to be affected at the onset; this is succeeded by weakness and uncertainty of voluntary movements, with stupefaction, followed, in severe cases, by convulsions and death. Headache was a prominent symptom in the various instances cited of carbonic oxide poisoning in houses. Pettenkofer speaks of having experienced this, and also the loss of co-ordinated muscular movement, in his own person whilst conducting some experiments on ventilation; and he makes the observation that doubtless Gruber's rabbits suffered in like manner, though they could not put their feelings into words. The existence of headache and loss of co-ordinated movements are, further, painfully exemplified in one of the instances cited of families having been poisoned by the entrance of gas from the soil into a dwelling, to which we cannot refrain from referring—that of a poor woman and her son who occupied a bed-room in the basement of a house. The mother

was found dead one morning in her bed with a wet cloth wrapped round her head, which had evidently been placed there with the view of mitigating the headache which preceded her death; and her son, a lad aged 18, was found to have collapsed on the floor, quite dead likewise, and with his clothes on. The people in the upper stories heard him playing his zither during the earlier part of the night, with the object, it was afterwards surmised, of endeavoring to dispel the symptoms aroused by the carbonic oxide; but, losing the power of co-ordinated movements, he appears to have dropped on the floor.

The question naturally arises, why is it that, in some instances of the foregoing character, death occurs in the first night, whereas in others warnings, so to speak, have been furnished for two or three consecutive nights? It cannot well be that the amount of gas which escapes from the main pipe in the street varies materially, as the cracks do not increase and diminish from time to time. The statistics of this class of gas-poisoning afford valuable assistance in replying to such a query. It so happens that, in nearly all instances, the poisoning has occurred during the night, and, further, that it has occurred during cold weather. Out of twenty-two instances recorded in Munich, twenty have occurred in the winter months. Pettenkofer's explanation is that in the winter heated houses act on the soil-air beneath them like, to a certain extent, so many cupping-glasses; and it is well known that cupping-glasses only act so long as the air within them is warmer than the air outside, and the more marked the difference in the temperature, the greater is the force exerted. Hence, to a great extent, variations in outside temperature exercise a marked influence in the amount of gas which gets into a dwelling.

Acting on his suggestion, one of his pupils, Dr. Welitschkowsky, undertook a series of experiments to ascertain what the chief factors were which influenced the direction taken by gas when it leaked into the soil. At a distance of several yards from the Hygienic Institute an iron gas-pipe was driven into the earth for a distance of about six feet, the free end of which was con-

nected with a gasometer. Surrounding this pipe a dozen other pipes were driven into the earth at varying distances, so that when gas was turned on into the central pipe it was possible to ascertain the proportion of gas in the air which was aspirated through each of the dozen encircling pipes. It was soon found that of the various meteorological factors, temperature was the only one which exerted a marked influence; and it was noted that, whereas in the summer the proportion of gas to air aspirated through the several encircling tubes was tolerably equal, there was in the winter a most marked tendency for the gas to escape towards a set of tubes in one direction, namely, towards the Institute, and in a direct line towards the boiler in the basement from which the entire building was heated. Thus the "cupping-glass" property of a heated dwelling was demonstrated beyond all question.

It has further been noted that in instances of gas-poisoning through the soil no appreciable odor existed, a circumstance which is explained by another set of experiments conducted by Biefel and Poleck, who demonstrated that such gas in passing through soil was deprived of every trace of odor, and that the soil was capable of continuing to exert this deodorizing property for a considerable period, until, in fact, it became completely saturated with the gas. The danger, consequently, of a leakage in the street may be even greater than a direct leakage in the house itself. The sting, so to speak, is present in both cases, but in one it is unaccompanied by a rattle.

What proportion of coal-gas in atmospheric air can be looked upon as decidedly poisonous? Taking Gruber's observations already cited as to the dose of carbonic oxide which exercises a decidedly deleterious influence, and assuming that coal-gas ordinarily contains ten per cent. of it, it follows that an atmosphere which barely contains one per cent. of coal-gas commences to be poisonous. From one to four per cent. the evidence of the poison becomes much more marked, though even such an atmosphere may be breathed for several hours without fatal consequences; but when the proportion rises to between

four and six per cent., there is the greatest danger to life.

When gas escapes from a pipe in a building, its presence can be recognized by its odor long before it accumulates in sufficient quantity to be highly deleterious; but when a current of odorless coal-gas finds its way into a room from the soil, it becomes a more difficult matter to decide as to the steps which should be taken, for it would hardly be justifiable to summon the servants of the gas-company to open up the street for the purpose of ascertaining whether the leakage had occurred, simply because a person who was suffering from headache and other symptoms which suggested to him the possibility of gas-poisoning. Such a thing, Pettenkofer says, is quite unnecessary, for means may be taken to test the suspected air for carbonic oxide; and Professor Fodor has devised a process which will detect one part of carbonic oxide in twenty thousand of air. In the meantime, the remedy is to throw open the doors and windows, and to allow the latter to remain slightly open in all cases where there is a suspicion of gas entering the house from the soil. This will serve not only to permit the deleterious air to escape, but will also diminish the tendency which exists for the gas to enter the house. The more firmly the doors and windows fit, the stronger the current of soil-air which will be drawn into the room. It seems very clear that, had the rooms in which the instances of gas-poisoning cited by Dr. Pettenkofer occurred been moderately well-ventilated, or even the window been slightly lowered, or a pane of glass broken, few, or perhaps none of the cases would have proved fatal.

It seems to us by no means unlikely that not a few deaths which are due to gas-poisoning of this kind may escape detection, especially in towns where the streets are covered with asphalt and other impermeable substances. One of the cases cited by Dr. von Pettenkofer may well serve to illustrate this particular view of the question. The instance was that of a priest, who for several days had been extremely unwell, without any appreciable cause. He had, however, observed that he felt worse on very cold days. Typhoid

fever was diagnosed, and one night it was expected that he would die. One of the reverend gentleman's parishoners, seeing him in this condition, declared her belief that he was suffering from gas-poisoning, notwithstanding the fact that gas was not laid on in the house. She was, however, firm in her opinion; and, although the medical attendant represented that the patient was too weak to be moved, she ordered a carriage, had him carried into it, and driven away into another house. By the time they had arrived at their destination, which was at no great distance, the reverend gentleman had so far recovered as to be able to step out of the conveyance unassisted, and walk up the steps of the house. The sequel, moreover, is equally strange and instructive. It appears that this gentleman was accustomed to keep his room, which was in the basement of the building, exceedingly warm—much more so than his companion who lived in the next room, and who had as yet experienced no such unpleasant symptoms. On the departure of the patient, his room was ventilated, and the fire allowed to go out. Strange to say, the occupant of the adjoining room awoke on the following morning with symptoms precisely similar to those which his friend had experienced. A strict inquiry was instituted, and it was found that a leak existed in the gas-pipe in the street. This incident serves to illustrate how easily a mistake in diagnosis may occur under circumstances of this character, and to demonstrate that the direction of a subsoil current of escaping gas may shift from room to room; for it is manifest that, in the instance narrated, it found its way into the room which was warmest on both occasions—the second priest's room having become the warmest as soon as the adjacent room was vacated.

Although the text of Dr. von Pettenkofer's paper is "poisoning by illuminating gas," and though the sermon keeps closely to the text, it is nevertheless, very obvious that the lesson which he wishes to convey has a far wider application—for it would embrace all gaseous and other emanations which may reach our dwellings from the soil on which they stand. The paper is written with all the vigor and perspicuity which char-

acterize all his writings—writings which have long ago placed him in the first rank, not only as a scientific observer, but also as a popular exponent of all matters affecting public health.—*British Medical Journal*.

Robert Denham Pinnock, M.D., C.M., on Enteric Fever from Contagion.

The following notes on an outbreak of typhoid fever, which recently came under my notice, will, I think, be read with interest by those who are still gathering arguments in favor of the contagion theory of the above disease. The village of Greendale, with a population of about one hundred all told, is about thirty miles from this city, and is situated partly in a valley, and partly on the sloping ground rising from one side of a watercourse which runs through the valley. This watercourse, in the dry season, is merely a chain of waterholes. The cottages are irregularly distributed, and every one is separated from its neighbor by a distance of from fifty to two hundred yards. The water-supply is chiefly from the creek, though some of the residents have wells; and a few collect their roof-water in iron or galvanized tin tanks. Only a few of the more important dwellings, such as the school-house, hotel, and store are provided with closets; and these are generally separate from the house, and are ordinary cesspits, except at the school-house, where the excreta are received into receptacles, which are emptied when necessary, and the contents buried. By the great majority of the inhabitants, the calls of nature are responded to in the most convenient spot in the vicinity of their dwellings, and household slops and refuse of all kinds are in most cases thrown out of the back door. There is thus every opportunity, during the summer, for noxious odors and vapors to rise around the dwellings, and, during the rainy season, for the fecal and other accumulations on the surface to be washed down to the creek, or to be carried directly, or by soakage through the soil, into the wells and water-holes at a lower level. Yet, in spite of all these unwholesome conditions, which have always existed, the schoolmaster informed me that to his certain knowl-

edge there had been no case of typhoid fever for the last eight years, and, on inquiring for me among the oldest inhabitants, he could not find any record of a single case having ever occurred before.

The three nearest settlements are respectively six, seven and seven miles distant.

The first case of the disease occurred in a girl named H., aged 22, who had been servant in a house in Melbourne where the complaint existed at the time she came home (March 14th). She became delirious, and took to bed seven days after arrival, and she was over two weeks before showing any signs of improvement. Her mother sickened eighteen days, her sister (aged 19) sickened twenty-two days, and her brother (aged 23) twenty-seven days after her arrival, and all went through regular attacks of typhoid fever. They were all remarkably strong and healthy before. They lived in a small cottage on the slope of the hill; the pigsty was a few yards from the house; slops and refuse were thrown out at the back; excreta were also thrown out at the back during the time of the sickness, and not covered with earth. Their water-supply was from the creek, but after the first member of the family became ill they got it from the school-house tank.

A child, P. (aged 4), living two hundred yards lower down the hill, took the fever six weeks after H.'s arrival from Melbourne. The P.'s got their water from a well close to their house, and their milk from the H.'s. The next attacked was Mrs. M., who used to go and nurse the eldest H. girl and her mother. After about three weeks of this self-appointed task, she complained of pain in the head and back, and shivering; and, though she did not lie up, she felt unwell, and suffered from diarrhoea. The M.'s lived on the slope of the same hill as the H.'s, but three hundred or four hundred yards on one side of them, and not much below the same level. Their water-supply was from a zinc roof, and collected into an iron tank; and their milk came from a dairy several miles away.

Mrs. M.'s little girl, aged 3 (the only child) sickened a few weeks after her mother gave up nursing the H.'s and went through a rather severe attack of the fever. In fact, all the cases nar-

rated were severe attacks, except Mrs. M.'s.

Mrs. M.'s child was the last case of which I heard. The cessation of the disease I attribute to the fact of a heavy and continuous rainfall occurring just after she became ill, which flooded the surrounding country, and no doubt washed away the remaining germs of the disease.—*British Med. Journal*.

J. S. Bristowe, M.D., F.R.S., on Unrecognised or Masked Cerebral Tuberculosis.

I am afraid that the title I have chosen for my paper this evening does not accurately suggest the object I had in view in writing it. In looking through the fatal cases that have been under my care during the last two or three years, I found that they included a considerable number in which tubercles were found either in the brain or in the cerebral meninges, or in both. In this, of course, there is nothing very remarkable; for cases of cerebral tubercle are unfortunately very common, and they gravitate largely to hospitals. But I observed also that there were several among them in which the presence of tubercles in the brain or its membranes was concealed, or rendered doubtful, during life, in consequence of the association therewith of other diseases which seemed adequate to explain the patients' symptoms; and one or two in which the apparent cause of cerebral symptoms might have been taken to exclude the possibility of their dependence on tuberculosis. It was to these cases that I determined to call your attention this evening; because, while several of them have clinical or pathological features of special interest, they all seem linked together by the common clinical difficulty which the name that heads my paper was intended to express.

The first two cases I shall quote are cases of children who, supposed to be perfectly healthy at the time, received blows on the head which were immediately, or almost immediately, followed by cerebral symptoms leading to death at the end of about three weeks.

CASE I. *Tubercular Meningitis; Symptoms following immediately on a Blow on the Head; Death; Necropsy.*—A boy,

aged 10, a pupil at a board-school, was said to have had perfectly good health up to May 30th, 1879. On that day his schoolmaster boxed his ears two or three times; and shortly afterward he complained of headache, was sick, and went home. From that time until June 17th, he suffered more or less constant pain in the back of the head and neck; he was frequently sick; there was a marked tendency to constipation; and he lost flesh and strength. His pulse was observed to be slow, and his tongue clean. He had no fit. On the 17th, he passed into a state of partial coma.

On the next day, the 18th, I saw him with his medical attendant. He lay in bed, taking no notice of what was going on round about him; his respirations were for the most part attended with groaning; and occasionally he uttered some stereotyped phrase. When addressed loudly, he opened his eyes, but he made no answer, and took no further notice. His pupils were unequal, but there was no obvious squint, nor, indeed, any other definite paralytic symptoms; the conjunctivæ were congested. He had passed his evacuations into the bed since the previous day. There was no sign of thoracic or abdominal disease, no rash, no ear-affection, no sign of injury to the head. The tongue was coated. His coma gradually became more profound; and he died, without any important change of symptoms, on the afternoon of the 21st.

The *post mortem* examination (at which I was present) was made on the 22nd. The body was emaciated. On removal of the skull-cap, the surface of the brain was found flattened and dry, and the pia mater uniformly and much congested. There was slight inflammatory thickening along the intergyral spaces and large vessels. A good deal of inflammatory deposit occupied the conflues at the base of the brain; and numerous small but distinct tubercles were scattered over the medulla oblongata and pons Varolii, about the circle of Willis, and along the fissures of Sylvius. There was great excess of fluid in the lateral ventricles, with much congestion and thickening of the velum interpositum and choroid plexuses, and abundance of tubercles in the velum. The brain-substance was fairly healthy. There was

no evidence of injury to the bones of the skull or to the soft parts within. The lungs, pleuræ, heart, and pericardium were free from tubercles, and healthy. The abdominal organs were not examined.

CASE II. *Tubercular Meningitis; Symptoms coming on after a Blow: Death; Necropsy.*—J. A. B., a boy two-and-a-half years old, was admitted under my care on April 8th, 1882. He had had good health up to the present illness, with the exception that, about a year previously, he had had two convulsive fits, attributed to teething. On March 21st, he accidentally fell down-stairs, cried, and said he had hurt his head; but he soon recovered, and continued well until the 24th, on which day he refused his food. In the night he was sick. The next day he ran about; but he was feverish and fretful, and still refused his food. He continued in much the same state for the next fortnight, suffering especially from loss of appetite, sickness, and constipation. On the 31st, he took to his bed; and from that time till his admission he passed his evacuations involuntarily. On April 7th he had a fit, attended with loss of consciousness, distortion, and lividity of face, and convulsive movements of the hands. He remained unconscious ever since.

He appeared to be a well developed, well nourished child. He was almost wholly unconscious; took no notice when spoken to; but withdrew his limbs when they were pinched or pricked. He generally lay on his back, but occasionally placed himself on his side. He presented occasional slight convulsive movements, which were also induced whenever he was moved or the attempt was made to feed him. The limbs tended also to become rigid at these times. The face was flushed. The eyes were opened occasionally, but usually kept closed; there was no squint; the pupils were equal, of medium size, insensible to light. Respiration presented the Cheyne-Stokes character in a well marked form. The *tache cerebrale* was fairly well developed. Reflex phenomena were natural. The thoracic and abdominal viscera were apparently all healthy. There was no albumen in the urine. The temperature in the morning was 99.2°, but it rose in the course of the day to 101.8°.

During the 9th he still remained unconscious, and had several fits. The temperature varied from 102.8° in the morning to 100.1° in the evening. No paralysis. The optic discs and retinae were healthy.

On the 10th he still remained unconscious; and, excepting that his temperature gradually fell from 101.2° in the morning to 97.4° in the evening, his condition underwent no material change up to the time of his death, a little after 7 P. M.

Necropsy.—The convolutions of the brain were flattened, and the surface dry. There was a little recent lymph in the subarachnoid tissue at the base; and numerous gray tubercles existed about the fissures of Sylvius, crura cerebri, and pons Varolii. The brain-substance generally was healthy, and was free from tubercular deposits. The ventricles were distended with serous fluid, and the white matter around them was softened. There was an encapsulated calcareous mass in the apex of the left lung, and a few miliary tubercles in its neighborhood. Miliary tubercles were also found in the liver and spleen. All the other organs were healthy.

REMARKS.—The above cases were, apart from their apparent causes, mere ordinary cases of tubercular meningitis, and would naturally, by most medical men, have been regarded as such during life. That also was the view which I took of them. At the same time, they were attended with some obscurity; and there were some grounds for entertaining an opposite opinion with regard to them; and I looked, therefore, with more anxious interest than I usually do to the revelations of the *post mortem* room. In both of them, and especially in the first, the symptoms followed so immediately on the blow, that it was difficult not to believe that the cerebral mischief was due to the blow; in neither of them was there any clinical evidence whatever of abdominal or thoracic tuberculosis; in neither of them was there any paralysis of the ocular or other cerebral nerves, which is common in inflammations at the base of the brain; and in the only one examined ophthalmoscopically the optic discs were healthy; but, on the other hand, there were no signs whatever of disease of the ear, or

any evidence of damage to the skull. The *post mortem* examination in each case revealed, as was anticipated, the presence of tubercular meningitis, but it showed also that the tubercles were few in numbers and small in size, and that the tubercular affection was therefore in an early stage. There is no sufficient reason, of course, to suppose that the tubercular deposit was caused by, or even supervened on, the blow upon the head. Doubtless the natural course of events in each case was, first, the deposition of tubercles, unattended with marked symptoms or obvious deterioration of health; and second, the super-vention of inflammation and dropsy excited by the local injury, to which, and not to the tubercular deposit immediately, the patient's symptoms and death were due. There is no reason, so far as I know, to doubt that, in all cases of cerebral tuberculosis, the early stage of tubercular deposition is unattended with symptoms, and that it is only at a later period, when the tubercles either have attained considerable bulk, or have implicated specially important parts, or have become associated with inflammatory mischief, that such cases become recognized clinically as cases of cerebral tumor or tubercular meningitis, as the case may be. Both of the cases I have narrated, and more particularly the first of them, convey an important warning to schoolmasters, and others who have to do with children, and are in the habit of chastising them. There are parts of the body which seem made for corporal punishment, and on which it may be inflicted to any reasonable extent without injury. They should confine their attention to these. I need scarcely add that the danger of serious mischief from comparatively slight blows on the head is not limited to those who are the subjects of latent tubercles. Rupture of the membrana tympani is not unfrequently caused by boxing the ears; and I recollect very well, some few years ago, being called to the death-bed of a young man who was dying from abscess of the brain connected with ear-disease. The history was that he had had some deafness and discharge from his ear for some years, but that he had never had any severe suffering from it, and was in fact in good health until

(about a week before his death) he was knocked down by a blow of the fist inflicted straight upon his lower jaw. This was immediately followed by intense pain and other symptoms referable to the ear, and, within a day or two, by those of fatal cerebral disease.

The next two cases are instances of disease of the internal ear, in both of which cerebral tuberculosis was discovered after death, but in neither of which (I am bound to confess) did I suspect the presence of this complication during life; in the first, because, as a matter of fact, there were no symptoms to justify any such diagnosis; in the second, because, although the child's symptoms were exactly such as might be caused by tubercular meningitis, I was misled by the history and presence of ear-disease into attributing them to brain-mischief secondary to this affection.

CASE III.—*Caries of Temporal Bone: Facial Palsy: Tubercular Tumor in Brain: Pulmonary Tuberculosis: Death apparently from Exhaustion: Necropsy.*—Mary C., aged $2\frac{1}{2}$, was admitted under my care on May 31st, 1883. She had had measles and whooping-cough, and for a year had suffered from a discharge from the left ear. Three days before, without obvious cause, her face became drawn to the right. She had not suffered specially from earache; and she had had no headache, no drowsiness, no quinting, no vomiting.

On admission, she was pale, but not emaciated. She had an offensive discharge from the left ear, and complete paralysis of the left portio dura; but there was no other paralysis; and, excepting that the child had a slight cough and a little occasional coarse crepitation over both lungs, seemed healthy.

She gradually became weaker; but there was very little further change in the child's condition during the month she was in the hospital. The ear continued to discharge profusely, but she had very little pain in it, and no swelling or tenderness in the neighboring parts. The facial palsy remained unchanged. She was inclined to be drowsy, but was not irritable, was perfectly sensible, and never had convulsions or any paralysis save that of the portio dura. She had no sickness; took her food fairly well, excepting toward the last; and her

bowels were regular. Her pulse and respirations were rapid; and her temperature presented remarkable variations; in the morning, it was always subnormal, ranging unusaly from 95° to 97° ; in the evening, it was almost always between 102° and 103.8° . On two or three occasions, the evening temperature varied from 99° to 101° . Her cough, though not very troublesome, continued to the last. The *tache cerebrale* was always producible. The ear was examined on two or three occasions; but the discharge was so profuse, that no clear view of the bottom of the meatus could be obtained. During the last few days, she became very weak and very drowsy, and without any special symptoms, died apparently from exhaustion, on the morning of June 30th.

Necropsy.—The body was much emaciated. The dura mater was firmly adherent to the skull, especially in each temporal region. That over the left temporal bone was a little thickened; and there was a slight amount of inflammatory lymph between it and the bone in this situation. The convolutions were flattened. There was no congestion or inflammation of the pia mater, and no appearance of miliary tubercle. The substance of the brain was soft, and the lateral ventricles contained a large quantity of serous fluid. In the right superior parietal lobule was a caseous tubercular mass as large as a small walnut; this was imbedded in the brain-substance, and extended almost to the outer edge of the lateral ventricle. Two similar masses, each of the size of a pea, were found in the left occipital lobe, at its extreme posterior edge. The left temporal bone, at the junction of the squamous and petrous portions, was superficially carious, granular, and presented pin-hole perforations. The external surface of the temporal bone, adjacent to the attachment of the pinna, was in a similar condition. The external meatus was completely bare and carious. The aqueductus Fallopii was involved in the carious and necrosed bone, and the facial nerves were destroyed. There were no traces of the auditory ossicles. The carotid canal and jugular fossa were not affected. The lungs were adherent by old adhesions, and thickly studded with caseous masses. In the

apices were many small cavities. The bronchial glands were enlarged and caseous. The mesenteric glands were caseous. The remaining organs were generally healthy.

CASE IV.—*Tubercular Meningitis associated with Chronic Otorrhœa: Psoas Abscess: Convulsions: Coma: Paralysis of both External Recti and of Superior Rectus and Levator Palpebræ of Right Side.*—Rosina C., aged 9, was admitted under my care on April 9th, 1883. When two-and-a-half years old, she fell and injured her spine, and subsequently presented a bend in the lumbar region. Three years before admission, she had scarlet fever, since which time she had been deaf, and had had a discharge from her right ear. Two weeks before admission, "an abscess broke" in this ear, and there was an offensive discharge from it up to the 6th. The patient was frequently sick from the commencement of her illness up to the same date; but she continued to run about and play as usual. On the evening of the 7th, she had an epileptiform fit; and on the 9th she had a second. The convulsions affected both arms and both legs equally.

The child, on admission, was fairly healthy-looking. She was drowsy, but very irritable; and frequently uttered the "hydrocephalic cry." There was no paralysis of the limbs, and no squint. The pupils were dilated, the right most so; and they acted little, if at all, to light. The tongue was coated. There was no vomiting. She had retention of urine. Temperature 102.2° .

April 10th. She was in much the same state, drowsy, irritable, and complained of headache. There was no paralysis of the limbs; but both external recti now acted imperfectly, as also did the right superior rectus and levator palpebræ. Both pupils were dilated, but the right was the larger. The *tache cérébrale* was well marked. The hydrocephalic cry was frequent. The tongue was coated: there was no sickness; the bowels were confined. The urine was retained and had to be drawn off by the catheter. There was no affection of the chest. On examination of the right ear, perforation of the membrana tympani was discovered, but no discharge. It was assumed however, that the child

was suffering from cerebral complication of ear-disease, and six leeches were applied to the mastoid process. The temperature to-day varied from 102.2° in the morning to 100° in the evening.

April 11th. The child gradually became comatose, with stertorous breathing, very feeble pulse, coldness of limbs, and falling temperature. When death occurred, in the course of the morning, the temperature was a little below the normal.

Post Mortem Examination.—The dura mater and skull were healthy. The surface of the brain was flattened, and some what dry, and the pia mater was a little congested. The membranes covering the medulla oblongata, pons Varolii, crura cerebri, and parts between these and the lamina cinerea were thickened, rough, and studded with a small number of minute grey tubercles. The surfaces of the fissures of Sylvius were adherent, and also presented a few small tubercles. The presence of these bodies was confirmed by microscopic examination. There was very little fluid in the ventricles, which were not at all distended. The substance of the brain was wet, but otherwise healthy. The fornix was somewhat softened. The vessels at the base were healthy. The sinuses were all healthy. The affection of the ear had not extended to the surface of the petrous bone, and there was no disease whatever in the dura mater covering it. The only other morbid conditions discovered were some caries of the lumbar vertebræ, and a double psoas-abscess. But although the spine was bent, there was no disease of the bony surfaces immediately surrounding the spinal canal; no inflammatory products in the canal, and no affection of the spinal cord or nerves. There were no tubercles in the lungs or elsewhere.

REMARKS.—In the first of the cases just narrated the child was suffering from advanced ear-disease, which had implicated the aqueductus Fallopii, and destroyed the trunk of the portio dura, and had involved the dura mater in the neighborhood of the petrous bone. But, although there were tubercular masses of some size imbedded in the substance of the brain, they had caused no symptoms whatever; there was no meningitis, and death was due mainly, if

not exclusively, to exhaustion, referable in part to the profuse discharge of pus from the ear, in part to pulmonary tuberculosis. In the second case, the child's latter symptoms and death were doubtless attributable to tubercular meningitis. It is noticeable, however, that the tubercles were few and small, and the meningeal inflammation slight; but that excepting for vague prodromal symptoms, lasting about two weeks, the progress of the case was unusually rapid, extending only to about five days.

The last case to which I propose calling your attention is one which naturally falls into the same category as the two which have just been discussed; but, altogether, it was a case of much greater interest than either of these, and deserves individual consideration. It was that of a little girl who, two or three months before she came under my care, showed signs of paraplegia, without definite local signs of spinal disease; who, a week or two before I saw her first, had some protrusion of the left eyeball, and fullness in the corresponding temporal region; who suffered (during the twenty weeks she was under my care) from incomplete and somewhat varying paraplegia, presumably due to vertebral caries; from exophthalmos on the left side, with swelling in the left temporal region, and (later) discharge from the left ear, manifestly dependent on disease of the bones forming the wall of the orbit, and in the neighborhood of this part; and who, a week or two before her death, manifested signs of cerebral mischief, of which (in combination with gradual exhaustion) she died.

In this case, caries of the vertebræ and of certain bones of the skull was discovered *post mortem*, as had been expected. There was also some inflammation of the portion of the brain in relation with the carious bone; but, further, there were miliary tubercles (scarcely tubercular meningitis) in the usual situation at the base of the brain. Their presence had not been suspected, and probably had had no influence on the patient's symptoms, or the event of the case. I may call attention to a practical point illustrated by both the fourth and fifth of my cases, to-wit, that while both presented vertebral caries with pretty

abundant suppuration, associated in one case with angular curvature, and in the other with paraplegia, neither of the patients presented the slightest pain or tenderness in the back.

CASE V.—*Caries of Sphenoid Bone with Protrusion of Eye-ball, Softening of Brain and Meningeal Tubercles; Caries of Dorsal Vertebrae and Paralysis: Death: Necropsy.*—E. M., a little girl, aged 7, was received into one of my beds on March 17, 1880. The father had had syphilis followed by eruptions, and had latterly been suffering from progressive muscular atrophy. One brother had a blow on the head, followed by the separation of a sequestrum, and died of psoas abscess; and a sister, after an injury to the wrist, had an abscess in her forearm, followed by the discharge of a necrosed portion of the ulna.

The child was well until last Christmas, when she became dull and spiritless and inclined to mope. During January she began to complain of pain in her legs, but at first had no difficulty in walking. About the same time, she seemed to suffer from general tenderness, and would scream when she was lifted up. Before long, it was noticed that her legs were weak, and that also she had difficulty in sitting up. About three weeks before admission, the paralysis of the legs had become complete; and then, or a little later, the left eye was observed to protrude. Subsequently a swelling made its appearance on the left temple.

She was a spare, delicate looking, sensible child. There was marked exophthalmos of the left eye, but she could close the lid. There was no impairment of the motion of the eye, and no inflammation. The pupils were equal and acted to light; the optic discs were healthy. In the left temporal region, just outside the orbit, there was a doughy, obscurely fluctuating, ill-defined swelling. There was no paralysis of the jaw, tongue, or arms. The legs were completely paralyzed, but sensation remained perfect. The superficial and deep reflexes were increased. Ankle-clonus was readily developed, and the legs were apt to become stiff and to present paroxysms of trembling. The evacuations were passed involuntarily. There was no curvature and no tenderness at any part of the

spine ; there were no bed-sores ; there was no disease of thoracic or abdominal organs. Pulse, 96 ; respirations, 24 ; the urine was of specific gravity, 1025, phosphatic, without albumen.

There was little change in her condition during the next three or four months. She did not lose feeling in her legs, nor did she recover power over them, and all the phenomena of spastic paralysis remained well marked, possibly even became somewhat increased. She occasionally acquired power over her evacuations, lasting even for several days at a time ; but for the most part, and latterly, her evacuations escaped involuntarily. She improved a little in health and spirits, and at no time complained of pain or tenderness in the course of the spine. The prominence of the left eye varied a little from time to time, and once a patch of congestion appeared on the outer and upper part of the conjunctiva. The swelling in the temporal region increased a little, and became somewhat more diffused.

On July 4th, I noted that there had been slight œdema of the left eyelids for a week or two ; and, now, that the œdema of the upper eyelid had much increased, and was attended with congestion ; that a circumscribed swelling, with an indistinct sense of fluctuation (as though an abscess were presenting), could be felt in the upper and outer part of the upper eyelid ; that the eye was a little less prominent than it had been, and slightly displaced downwards and inwards ; and that there was still no pain in the parts.

On the 12th, some purulent discharge escaped for the first time from the left ear ; there was, however, no ear-ache or deafness. The temporal swelling was somewhat smaller. The protrusion of the eye-ball had increased, and the swelling in its vicinity was larger, redder, and more distinctly fluctuating. A day or two afterwards the swelling was punctured with a fine trocar and cannula, but no fluid escaped.

On the 20th, I remarked that the swelling above the eye had become larger, but that the eye was somewhat less prominent ; that pus had continued to escape from the left ear, and that the temporal swelling had almost disappeared ; and that the child had for some

days been able to move its legs freely, but that they were liable to become rigid and to tremble convulsively.

About this time, however, the child's temperature began to rise, attaining on one occasion an elevation of 103.4° ; her appetite fell off, and her health began to fail. She complained at first of nausea, and soon was sick after every thing she took, and rapidly lost flesh and strength. She still had no pain or tenderness in the back, and still retained the power of moving her legs voluntarily. She was now fed with nutrient enemata.

July 30th. She had a very restless night, calling and crying out constantly. She was apparently sensible, but spoke very indistinctly. Her pupils were dilated, equal. There was no paralysis of the face or arms. She had no discharge from the ear this morning. The swelling above the eye fluctuated. Temperature normal.

July 31st. She slept well and did not cry out all night. She had taken no food by mouth, and had been sick only once after medicine. She was drowsy. She put out her tongue when told ; it was thickly furred. The left pupil was larger than the right. She had no pain in the head. Temperature normal. In the evening she was about the same. Pulse, 108 ; respiration, 24 ; temperature, subnormal. There was no pain in head, and no sickness nor discharge from the ear that day. There was no facial or ocular paralysis, but the tongue deviated distinctly to the left.

August 1st. She was much weaker. Her tongue was dry, protruded to the left. The pupils were equal. Pulse, 108 ; respiration, 36, attended with much rattling in the throat. Some hours later (at 1.30 P. M.) she had not spoken, but seemed sensible. The left pupil was more dilated than the right, and was unaffected by light. The tongue deviated distinctly to the left. The swelling above the eye fluctuated. There was no sickness, no fits. She waved her arms about, and picked at her nose ; and had occasional twitchings of the muscles of the shoulder and back. The *tache cerebrale* was readily obtained. Pulse, 120 ; respiration, 30, attended with rattling in the throat. There was no sickness, nor discharge from the ear. She died shortly afterward.

Post Mortem Examination.—The body was much emaciated. The left eyeball projected. There was ecchymosis of the corresponding upper eyelid. The left temporo-sphenoidal lobe of the brain was firmly adherent to the greater wing of the sphenoid bone and to the posterior border of the lesser wing. The arachnoid at the base of the brain was a good deal thickened, and of an opaque yellow color. Surrounding the vessels of the base, and especially along the fissures of Sylvius and connected with the duplicatures of pia mater in the adjoining sulci, were numerous minute gray tubercles. There was great increase of subarachnoid fluid, but in all other respects the membranes were healthy. The ventricles were slightly distended with fluid. The substance of the left temporo-sphenoidal lobe was considerably softened, and was readily broken up by a stream of water. But there was no abscess; and the brain-substance, with this exception, was healthy. The nerves at the base were apparently healthy. In the left orbit, the upper and outer osseous boundary (including the orbital plate of the frontal, the greater wing of the sphenoid, and the orbital portion of the malar bone) was partly stripped of periosteum, carious, and bathed in a considerable accumulation of thick matter. There was also a collection of cheesy pus under the left temporal muscle, connected with denudation and caries of the portion of the sphenoid here situated. The bodies of the third, fourth and fifth dorsal vertebræ were largely destroyed by caries; the pedicles of the same vertebræ were carious and brittle; and the laminæ of the third and fourth were also involved. The bodies of the vertebræ were comprised in an abscess, extending from the second to sixth vertebra, occupying the posterior mediastinum, but not affecting in any degree the adjoining pericardium and pleuræ. The affected portions of the vertebræ bounding the spinal canal were also bathed in pus, which was chiefly accumulated in front between the bodies of the vertebræ and the dura mater of the spinal cord. The anterior and posterior common ligaments were partly destroyed. The accumulation had evidently caused some pressure on

the spinal cord. The dura mater was adherent at one point to the vertebræ; but the membranes were in the main healthy. The portion of cord corresponding to the diseased vertebræ was very pulpy. The rest of the cord appeared healthy. There was a little early inflammation at the base of the right lung; but no tubercles were discovered in the lungs or any other organ. The remaining thoracic and abdominal viscera, including the kidneys and bladder, were healthy. No disease of the temporal bone was discovered; nor was the communication (which doubtless existed), between the abscess under the temporal muscle, and the external auditory meatus, traced.

REMARKS.—The facts which one or two of my cases seem to illustrate, and which I could have illustrated more fully had that been my sole, or even main, object, namely, that there is a period in the early progress of cerebral tuberculosis in which the presence of cerebral mischief is not revealed by symptoms; and that the symptoms which attend the presence of meningeal tubercles are, for the most part, due less to the tubercles themselves than to the inflammation which sooner or later accompanies them; suggest a question of no little importance, which I should have liked to discuss had I not already taken up fully as much of your time as, on the present occasion, I have any claim to do. The question is whether the progress of cerebral tuberculosis, like that of pulmonary tuberculosis, admits of being arrested; and whether, too, the cure of tubercular meningitis, that is, of tubercle with its inflammatory complication, is within the range of practical therapeutics. The first half of the question is, of course, exceedingly difficult to solve. It may be observed, however, in reference to it, that tubercular tumors are, judging from their clinical history, often very chronic in their progress, extending, it may be, over several years; and that occasionally the membranes of the brain seem, judging from *post mortem* examination, to be the only part of the body affected with tubercle. Both of these are facts comprising an element of hope as to the latter half of the question. I may say for myself that I have, on several occa-

sions, had patients under my care, or have seen them in consultation, in whom the history and symptoms rendered it almost certain that they were suffering from tubercular meningitis, but in whom recovery took place. That the patient recovered from meningitis of the base was certain ; but whether from meningitis the consequence or accompaniment of tubercle, I have never (fortunately or unfortunately, according to the point of view from which one regards it) had the opportunity of placing beyond doubt. At any rate, the belief that we may, even though very rarely, check the progress of cerebral tubercle, and cure the inflammation of tubercular meningitis, is calculated to encourage us in our dealings with such cases, and to justify us in persisting in reasonable treatment, and in hoping against hope.—*British Medical Journal*.

Scheiber on Rotatory Epilepsy.

Dr. Scheiber, of Buda-Pest, communicates to the *Wiener Med. Blätter*, of Oct. 4, 11, and 18, an account of a remarkable case of what he calls epilepsia rotatoria in a married woman 46 years of age. The patient had always been quite healthy, and had never suffered in childhood from any nervous trouble, nor had any such been in her family. In 1861 and in 1870 respectively she had severe frights, in one case from discharge of a gun in the room where her children were, in the other from a report that one of her boys had fallen into the river ; but both passed off without leaving any consequences, and she was a bright, lively woman, helping her husband in the school which he taught.

In 1871 she changed her residence, and three months afterwards, being in her ninth pregnancy, she felt a sudden attack of giddiness whilst cooking one morning. The feeling lasted only a few seconds, and was accompanied by a sensation as if her face had been turned rapidly towards the left. Some weeks afterwards the same feeling returned while she was engaged in washing ; and after another few weeks, in the seventh month of pregnancy, such a strong attack of giddiness came on that her husband was obliged to hold her, and at the same time her whole body was turned rapidly and violently on its vertical axis

three or four times toward the left. These attacks occurred once or twice every day, but were followed by no unpleasant symptoms, and at the end of the pregnancy they ceased altogether.

During the fifth month of the tenth pregnancy they came on again in the same way, to disappear after the birth of the child. In 1876, when she was six months pregnant of her eleventh child, she had a sudden and violent epileptic fit, beginning, as before, with giddiness and rotatory movements, and followed by convulsions and loss of consciousness, which lasted for three days, with epileptic seizures about every half-hour. These severe attacks then occurred nearly every day, and did not cease, as before, with the termination of the pregnancy, but have continued more or less ever since, coming on also during the night.

The less severe attacks are always associated with the rotatory movements, which occur when the patient is standing or walking, without causing her to fall, and leave her standing quite still, without giddiness or staggering. If she be seated when they come on, she suddenly springs to her feet, and then the rotation begins, feeling, she says, as if some one seized her by the head and forcibly turned her round. If she be lying in bed, she is at once forced into a sitting posture, even out of the deepest sleep, after which she falls back on the bed and is rolled in the same direction, only prevented by her husband from rolling to the floor. The severer attacks, amounting to loss of consciousness, leave exhaustion and weariness, so that this exhaustion is often the only sign by which she knows that she has had an attack during the night.

In 1878 she took bromide of potassium and atropine, with the result of stopping the attacks, but she felt so ill and wretched the whole time, that the treatment was stopped, as she preferred having the attacks and then feeling, as she always had done, perfectly well in the intervals. When the attacks came on after that treatment, it was with some considerable variation ; the severer fits did not return, and the milder ones only at night, so that the patient gradually became able to move about by day, and even to take long walks. During the

night, however, they became very frequent, six or seven in one night, and finally they were liable to come on even as soon as she closed her eyes, or if she lay down during the day. The severer attacks then began to come on during the night once a week, occurring generally between the hours of 3 A. M. and 6 A. M. She now became able to prevent the rotatory movements during the day, when the giddiness gave her sufficient warning, by several rapidly drawn respirations, which were always successful when the warning occurred soon enough. During two absences from her home in Alba, one of six weeks and the other of ten days, no attacks occurred, but they reappeared at once on her return home.

During the period of the severe attacks she has borne two more children, making thirteen in all; the pregnancies and deliveries have been normal, and the children healthy and strong. Large doses of bromide of potassium have been given by Dr. Scheiber, but 6 grammes (90 grains) a day, which cut short the attacks, produced toxic effects, and had to be diminished. In June 1883 the severe attacks had entirely ceased, the milder ones had become still milder and less frequent, and in August, under the influence of a combination of bromides of potassium, sodium, and ammonium, of each 2 grammes (30 grains) daily, the day-time attacks ceased, the two or three during the night were quite inconsiderable, and the patient seemed as well and strong as ever, with only a little weakness of memory.

The author ascribes what is undoubtedly a form of epilepsy to a deposit of osteophytes on the interior of the skull during the successive pregnancies in which the attacks broke out; and the remarkable fact that the intellect should have remained intact after twelve years of epileptic attacks, is attributed by him to the epilepsy having been acquired at a late period of life.—*London Medical Record*.

Schenker on the Operative Treatment of Empyema.

Of the three methods in use for the treatment of this condition the author (*Fahrbuch für Kinderheilkunde*, Band xx., Heft 2) considers that the first,

simple aspiration, should be abandoned. The other two, puncture with the canula left in, and open incision, are about equally favorable in results; but the former, being easier of performance, especially in private practice, is to be preferred where possible.

The puncture is made under antiseptic precautions in the postaxillary line not lower than the seventh interspace. The spray is kept up as long as the pus flows, to avoid the inspiration into the pleural cavity of air that has not been disinfected. When the cavity has been evacuated, a lukewarm 1 per cent. solution of thymol is injected. The canula is left in, a piece of salicylic wool is placed over it, and the whole is secured by a bandage. The dressing is changed once or twice a day according to the quantity of pus flowing, and, especially if there be blood on the wool, the injection of thymol is repeated. When the lung begins to expand, the canula is removed and an India-rubber drainage tube substituted. The author gives reports of eighteen cases. [But he has rather illogically included some of simple hydrothorax; and as these are useless for comparison, the reporter has omitted them.—*Rep.*] Much abbreviated, the cases are as follows.

1. A girl, aged 2½ years, had left empyema; a puncture was made and the canula left in; a 1½ per cent. carbolic injection was made. She had a relapse; the ribs were overlapping, one was resected. A 40 per cent. carbolic injection was made. A large canula was left in, with a tube attached, dipping into carbolic solution. Recovery took place in three months.
2. A girl, aged 3½, had left empyema. The canula being blocked, the puncture was enlarged by incision; the canula, with a tube, being re-introduced after the evacuation of pus. Recovery followed in twenty-seven days.
3. A girl, aged 11 months, had left empyema. Aspiration was performed; but the canula becoming blocked the operation was abandoned. The rest of the pus was absorbed. Recovery took place at the end of one month; but there was still a little dullness.
4. Right empyema in a girl, aged 4 was aspirated three times, but returned each time, and finally 'pointed.' An incision was made, and 2 per cent. car-

bolic solution injected ; a drainage-tube was applied. Recovery took place in two months from the last operation. There was no spinal curvature. 5. A boy, aged 6, had right empyema. Aspiration was performed ; a relapse followed, with œdema and ascites, but no albuminuria ; then intercurrent scarlatina. A second aspiration was made ; again œdema followed with albuminuria. The child died. At the *post mortem* examination, nephritis, etc., were found. 6. A girl, aged $2\frac{1}{4}$, had left empyema. Aspiration was performed ; the canula being blocked, the operation was interrupted. Next day, aspiration was repeated a little in front of the first puncture. The patient became feverish, and not doing well, was removed by her friends. 7. A girl, aged 5, had left empyema. Aspiration was performed ; the fluid returned ; the patient was feverish. A puncture was made, and the canula left in ; an injection of one-third per cent. solution of salicylic acid was made and repeated daily. Three days later, the patient coughed up a quantity of pus. The pus from the wound was fetid, and there was pain in the side. Carbolic injections were substituted, and a drainage-tube was put in place of the canula. Pain then disappeared, and the wound healed in five weeks. There was no relapse. 8. A girl, aged 6, had right empyema. A puncture was made, and thymol solution injected ; the canula was left in. Lister's dressing was applied ; the drainage-tube replaced a canula on the twenty-fifth day. Complete recovery followed in four months. 9. A boy, aged 7, had left empyema. Aspiration was first done ; afterwards puncture with drainage. Death took place in six weeks from tuberculosis. 10. A boy, aged $4\frac{1}{2}$, had right empyema. Aspiration, and afterwards puncture, were performed ; the canula was left in ; daily irrigation was practiced. A drainage-tube was applied on the tenth day. On the thirty-second day there was high temperature ; the empyema was pointing below the fistula. An incision was made, and the abscess-cavity was irrigated. Complete recovery followed fourteen weeks after puncture. 11. A girl, aged 2 years, had left empyema, forming an immense abscess reaching from the loins to the spine of

the scapula. An incision was made ; and solution of thymol injected. Three drainage-tubes were left in, and the whole covered with salicylic wool. On the fiftieth day, the child had an intercurrent attack of measles. On the eighty-sixth day the wounds had healed, and the lungs were nearly normal. 12. A boy, aged $3\frac{1}{2}$, had left empyema. Aspiration was followed by relapse. Puncture was then made, with thymol injection ; the canula was left in. On the fifth day, an intercurrent attack of measles took place. Complete recovery followed on the seventy-seventh day. 13. A boy, aged 6, had left empyema. Aspiration was followed by relapse. A puncture was made, and thymol injected ; the canula was left in ; afterwards a drainage-tube. Recovery had taken place on the fiftieth day. 14. A girl, aged 5, had left empyema. Aspiration was performed. Recovery followed in four weeks. 15. A boy, aged 2, had empyema pointing in the left axilla. An incision was made ; the ends of two ribs were found carious, and were resected. A thymol injection was administered, and a drainage-tube left in. Complete recovery followed in twenty-nine days. 16. A cyanotic girl, aged 5 months, had left empyema. A puncture was made, and the canula left in. Thymol injection was repeated daily. She was removed by friends, with the wounds still discharging.—*London Med. Record.*

Goodridge on the Contagiousness of Erysipelas,

Dr. H. F. A. Goodridge, in the *Practitioner* of Dec. 1883, p. 471, contributes an able paper on the contagiousness of erysipelas considered with reference to recent researches.

The author commences by stating that cases of facial erysipelas are often admitted into medical wards, and the disease is never known to spread from bed to bed. Again husband and wife have often occupied the same bed, without the disease being communicated from one to the other. The value of such facts is next inquired into as objections to the current doctrine that the disease does possess the property of contagiousness. Dr. Goodridge has suffered from three attacks of erysipelas of the head and face. In the first attack, he was

suffering from a gum-boil; there were some cases of erysipelas in the neighborhood. Vomiting suddenly came on, with rigors and rise of temperature, followed by redness and tension over the right malar bone. The attack was sharp, and produced marked constitutional disturbance. On the second occasion he had been exposed to a hot sun, and, without any breach of surface, he experienced a feeling of heat and stiffness over the right malar bone, lasting for two or three days, and followed by desquamation, but there was no rise of temperature and no constitutional disturbance. The third attack occurred after the author had entered for a few minutes a ward in which there were a number of cases of erysipelas. At the time he happened to have one or two little sores on his head from using a hard hair-brush; within twenty-four hours, rigors and marked constitutional disturbance supervened. From personal and practical experience Dr. Goodbridge concludes that cases of facial erysipelas are of two kinds; the infective and non-infective, or, as he terms them, true genuine erysipelas and spurious or pseudo-erysipelas.

Turning next to the affirmative side of the question, no lack of instances will be found of its propagation by contagion. The evidence of a *contagium vivum* has been demonstrated by histologists; and lately it has been shown by Dr. Fehleisen, of Berlin, that there is a species of bacterium peculiar to erysipelas.

The micrococcus was cultivated outside the body, and in the course of two months fourteen generations were produced. The same experiment was tried with the organisms found in the pus of pyæmic and other wounds, but these never behaved in a like manner; so that the mode of growth of the micrococcus was found to be characteristic. Next, the cultivated germs were introduced into wounds of healthy animals. Nine rabbits were inoculated on the tip of the ear, and in eight cases a marked attack of erysipelas followed.

Dr. Fehleisen then inoculated the human subject with the pure and the cultivated micrococci. He did so on the principle that an attack of erysipelas has been proved beneficial in such di-

seases as cutaneous tumors, lupus, etc. In six cases of this sort the experiments were instituted, and in all the characteristic phenomena were developed within from fifteen to sixty hours. It may be added, a beneficial therapeutical effect was obtained in nearly every instance.

Dr. Fehleisen also demonstrated that ærial infection is possible, and thus the doctrine of the spontaneous origin of erysipelas is shaken.

The experiments also showed that there is a certain immunity acquired by a previous attack, and the question of distinction of erysipelas on this ground from other zymotic diseases resolves itself into a mere question of degree.—*London Med. Record.*

Burresi, De Renzi, Cantani, and Capparelli on Diabetes Mellitus.

Various points in connection with diabetes have of late been occupying the attention of Italian observers. De Renzi calls attention to the very different prevalence of the disease in different places. In Naples it is frequent. In Genoa it is rare. In some districts of India it is very common. In St. Petersburg, during several years, not a single case was observed. He agrees with the opinion that ascribes the greater frequency to a diet almost exclusively vegetable. There must, however, be some other more powerful influence at work, as diabetes is rare or absent in some places where a vegetable diet is used. He considers the disease to be one of the nervous system. He notes also that he has always observed a marked diminution of muscular power. Capparelli relates a case in which diabetes arose after long-standing disease of the pancreas. The pancreatic mischief was diagnosed during life by the seat of the pain and by suppurative corresponding to the position of the organ; pancreatic calculi came from the fistulous opening; the secretion resembled saliva, and was more abundant from five to seven hours after dinner; fatty diarrhœa alternated with constipation. The author leaves it to others to trace the connection between the two diseases.

In regard to the amenability of diabetes to treatment, opinion is somewhat divided. On the one hand, Prof. Primavera holds that it is completely curable,

no matter what the intensity of the disease may be, or how far advanced it may be. Prof. Cantini thinks it curable if treatment is commenced in time and rigorously carried out. On the other hand Burresi (now removed by death from the controversy), De Renzi, and others, do not think that the severer forms of the disease admit of what can properly be called a cure. Most observers think that drugs are of comparatively little use, though various remedies have been vaunted. Burresi records five cases in minute detail; and infers the worthlessness of lactic acid, copper, iodoform, glycerine, and arsenic. He thinks there are two varieties of diabetes; one, mild, occurring in eaters of starchy foods, may in certain places be susceptible of a temporary cure; the other, severe, occurring in flesh-eaters, is altogether incurable. Professor Cantani, who from an experience of more than 600 cases, thinks that if taken in time the disease can certainly be cured, relates five fatal cases. As regards treatment, his whole confidence is in a suitable and rigorously maintained dietary. He has tried one after another the various drugs recommended, salicylic acid, strychnia, opium, the bromides, iodoform, etc., besides electricity; and though he has used them for long periods and in increasing doses he has found them of no value, or useful only in cases where the diabetes was dependent on some transitory condition (mellituria), and where, if left alone, it would get well of itself. Professor de Renzi considers it important that fresh vegetables and wine should be given in addition to animal food, eggs, and fish. He names specially chicory (*Cichorium intybus*), endive (*Cichorium indivia*), and the cabbages (*Brassica oleracea*). The use of green vegetables and of wine prevents the azoturia and the wasting that follow an exclusively animal diet, and reconciles the patient to the restrictions in his food. When the glucosuria does not disappear with a mixed diet of this character, no advantage will be gained by confining the patient to animal food alone; in fact, such a course frequently causes a slight increase in the quantity of sugar. Glycerine, if given in large doses, from 150 to 300 grammes, increases the amount of glucose. It always produces, how-

ever, an increase in the weight of the body, unless diarrhœa or some other complication annul its effect. It augments the quantity of urine and diminishes the amount of urea in it. Professor de Renzi regards it as an excellent substitute for sugar to the diabetic. From 40 to 300 grammes were taken daily; that is, a much greater quantity than is usually recommended. Iodoform produced some slight benefit, from two to three grammes being taken a day. No marked or constant action was obtained from pilocarpine, duboisine, kairine, etc. An infusion of coca leaves lessened somewhat the secretion of urien.—*London Med. Record.*

Tilden and Watson on Internal Urethrotomy.

In the *Boston Med. and Surg. Jour.*, No. 17, 1883, there is an analysis contributed by Dr. G. H. Tilden and Dr. F. S. Watson of nineteen cases of urethral stricture, treated by Otis's operation of internal urethrotomy. This analysis is followed by some observation on the possible dangers and complications of the operation, and on its advantages as compared with those of other plans of dealing with urethral stricture. Divulsion, the authors hold, is undoubtedly a safe operation, and temporarily very effective, but still is open to adverse criticism. It is a rough and indiscriminating application of force, which does not recognize the individuality of the urethra. That one urethra differs from another in caliber, and that the average caliber of the urethra is larger than the largest sized divulsor in ordinary use, are already demonstrated facts; and by reason of these facts it follows that many strictures will remain incompletely divulsed, and therefore inadequately treated by this operation. The wound made by the divulsor is a tear, the extent and direction of which are entirely out of the control of the operator, being probably determined more by the size and physical peculiarities of the stricture than by any other factor. Such a lacerated wound of the urethral mucous membrane, in cases of small stricture, is likely to be transverse as well as longitudinal, and to result eventually in that for which it is but a temporary remedy, namely, stric-

ture of the canal. After divulsion, it is as necessary for the patient to introduce an instrument for an indefinite period of time, as after treatment by gradual dilatation. These faults are avoided in Otis's operation. In each case, the work done is graduated exactly to the predetermined and individual size of the urethra, and a longitudinal incision is made through the stricture put on the stretch, that it may be more completely divided. Reybard, of Paris, has found by experiments on animals, that longitudinal incisions of the urethra do not of themselves result in stricture of the canal; and confirmatory evidence in the same direction has been afforded by the details reported by M. Perrin of three necropsies upon human subjects who had during life been subjected to internal urethrotomy. The authors state that the chances of constitutional disturbance and danger to life, in consequence of operations upon the urethra, depend much more upon the condition of the patient than upon the method of operation. Examination has been made of the surgical records of the Massachusetts General Hospital for the past ten years with reference to the frequency of stricture, with the following results. In 47 cases of stricture, treated by gradual dilatation there was one death, and constitutional trouble in 36·17 per cent. of the cases. In 113 cases treated by divulsion during the same period there were two deaths, and constitutional disturbance in 26·6 per cent., or in 30 cases. The average length of time for which these cases of divulsion were confined to the hospital was sixteen days. Thus the treatment by gradual dilatation was productive of constitutional disturbance in a larger proportion of cases than treatment by divulsion. It is not rare, the authors point out, to see cases recover without an unfavorable symptom after divulsion or internal urethrotomy, which have previously presented severe general symptoms during treatment by gradual dilatation. In cases where gradual dilatation produces chills and fever, repeated at each introduction of a bougie, this method of treatment should not be persisted in, but divulsion or internal urethrotomy should be done at once. An analogous relation holds between old-

fashioned lithotritry, as done in several sittings, and Bigelow's operation, which affords immediate and permanent relief. In cases of stricture of large caliber, uncomplicated by disease, and where there is no manifest dysuria, the converse of the above, the authors think, is probably true, and internal urethrotomy causes constitutional disturbance in a larger proportion of cases than gradual dilatation. In these latter cases, however, the chills and fever are not of serious import, and are to be regarded, it is asserted, as an unpleasant incident rather than a serious drawback of an operation which offers fair promise of a permanent cure. Internal urethrotomy is held to be unsuited to stricture situated beyond the bulb, by reason of a supposed risk of uncontrollable hæmorrhage. According to the experience of the authors, by far the largest number of strictures are situated in the anterior portion of the urethra within four inches of the meatus. In conclusion, the authors state that they wish to be considered as reasonable advocates of internal urethrotomy as done by Dr. Otis's method. They hold that, whilst not proper in all cases nor always successful, it is an operation which, when rightly done in suitable cases, is the one of all others which, without danger to the patient, brings to him the most speedy relief and the best chances of a radical cure.—*London Medical Record*.

Ananoff on a Case of Absence of the Uterus.

Dr. S. O. Ananoff, of Tiflis, records (*Proceedings of the Caucasian Medical Society*, No. 13, 1883) the case of a girl, aged 20, of diminutive size and moderate build, who sought his advice on account of cardialgia. The patient had never menstruated. The breasts were underdeveloped; the pubes was void of fat and covered with very scanty hair; the labia had the appearance of small, thin, flat folds; the clitoris "had the size of a poppycorn." The hymen was normal, of a circular variety. The vagina measured 5½ centimetres in length, and formed a blind pouch without any traces of the intravaginal portion of the womb. Combined examination after Kiwisch's method (by a finger in the rectum, and a catheter in the

bladder) showed a complete absence of the uterus. The author's diagnosis was afterward confirmed by Drs. V. E. Krusenstern and Babanasiantz. Dr. V. E. Krusenstern also saw a case of absence of the uterus in a Georgian girl, aged 17, who applied to him with complaints of amenorrhœa and hypogastric pain. The vagina formed a short blind pouch; through the rectum a small lump of the size of a walnut was felt in the situation of the uterus. Dr. Tatiana N. Potapova came across a case of absence of the uterus in Professor Tarnovsky's clinic; the external genitals were fully developed, and the general appearance of the patient presented nothing abnormal. [A dozen cases of absence of the uterus extracted from the Russian literature of late years may be found in the *London Medical Record* June, p. 241, and November, 1883, p. 480.—*Rep.*]—*London Medical Record*.

Delgado on a Remarkable Case of False Pregnancy.

A woman, aged 30, married, separated accidentally from her husband for several months, presented herself in the hospital at Valladolid for advice, saying that she was pregnant and out of her reckoning. The greater part of the signs of pregnancy existed—suppression of the menses for about nine months, gradual enlargement of the abdomen to full-term size, increase of the breasts with pigmentation of the nipples, vomiting at the beginning and end of the pregnancy. She said she felt the movement of the child. On examination, ballotement, movements of the fœtus, and fœtal heart-sounds were absent. After four days in the hospital, labor-pains began, terminating by the expulsion of a great quantity of blood in dark clots and liquid by the vagina. At the same time there was violent hæmatemesis, which had to be controlled with ice and perchloride of iron. Three years later, when she had again been living with her husband for eleven months, the same series of phenomena occurred; the hæmatemesis, however, being less intense. On the most careful examination, no trace of mole, or of remains of placenta or fœtal membranes, could be discovered.—*London Medical Record*.

Brigidi and Bianchi on the Contagiousness of Rabies.

The authors, after noticing the experiments of Pasteur and others, go on to relate their own. Three cases of hydrophobia in the human subject came under their observation. They made upwards of a dozen experiments to communicate the disease to the lower animals, mostly rabbits. The inoculations were performed with blood, fresh saliva and brain tissue beaten with water to a semi-fluid consistence. The micro-organisms cultivated in glycerine, and in no respect differing from those found in the blood, were also tried. In only one case did the inoculation give rise to hydrophobia, though in several instances the animals died of a quickly fatal septicæmia. In the successful case, some of the brain of a child that had died of the disease was reduced to a pultaceous consistence, and was inserted into the brain of a rabbit in the place where a small slice of the cortex had been removed to make room for it. The wound healed perfectly, and in a few days the animal appeared perfectly restored to its usual condition. On the thirty-second day from the operation, unusual restlessness and loathing of food were noticed. The following day there were convulsions, and death occurred. On examination, not the smallest trace of inflammation was to be found in the neighborhood of the wound, which had healed thoroughly. The only thing abnormal that was discovered was an abundance of granular spherical micro-organisms, colorable with methyl-violet. These were found in the brain, in the spinal cord, and in the blood. Experiments with cultivated liquids gave purely negative results. The researches of the authors were intended to solve three problems: the communicability of the disease from man to the lower animals; the seat of the virus; and the element wherein the virus consisted. From the foregoing account it will be seen that the disease is not very readily communicated. As to the second and third questions, the authors regard the minute granular spherical organisms as the virus, though, in view of the negative results given by the cultivated organisms, they think that the point stands in need of demonstration. Among the places where these

organisms are most plentiful, they especially note that the central canal of the spinal cord is always choked with a finely granular filamentous exudation, readily colored with carmine, the vibratile epithelium lining the canal being swollen and turbid.—*London Medical Record*.

Harrison on Catheterism of the Ureters.

Mr. Reginald Harrison, in the *Lancet*, Feb. 1884, p. 198, describes a method by which it is possible to catheterize the ureters. Experiments were made on the dead subject. Lateral lithotomy was performed on a middle-aged subject; the incision into the bladder was extended in front into the membranous urethra, and behind into the prostate. Through the opening thus produced, no part of the mucous membrane of the bladder could be inspected even with the use of suitable retractors. The cavity of the abdomen was then opened by a median incision above the pubes, sufficient to admit three fingers over the fundus of the bladder. By thus pressing down the bladder towards the perineal wound the whole of the mucous surface could be brought into view, including the orifices of the ureters and the trigone. By this means it was found quite easy to catheterize the left ureter, and the right could be reached with a little trouble. It was also inferred that, with the hand in the abdomen, all hæmorrhage from the deeper incision was under control. The removal by this means of a calculus impacted in the vesical terminations of an ureter seems feasible.—*London Medical Record*.

Crede on Extirpation of the Spleen.

Dr. B. Crede (*Gazz. degli Ospitali*, and *Gazz. Med. Ital. Prov. Venete*, Jan. 12, 1884,) narrates the case of a man, in whom a large tumor, of the size of a child's head, existed in the region of the spleen. The tumor gave decided signs of fluctuation. The diagnosis remained uncertain between hydronephrosis and cyst of the spleen. On puncture with a trocar, about thirty ounces of clear yellow fluid, containing crystals of cholesterine, escaped. An incision was then made, extending from the rib to the

crest of the ilium, and the membranous walls of the cyst and splenic pulp extirpated. The vessels of the peduncle were tied with a double ligature of catgut, and then divided; and the free peduncle was left within the abdomen. No drainage tube was used. The wound was united and dressed antiseptically. The microscopic structure of the spleen was normal. Although the condition of the wound continued to be favorable, the patient became daily more and more anæmic; so that, two months after the operation, the proportion of white corpuscles to red was one to three or four. From this date, however, things began to mend, and in four months and a half the patient was completely restored. As a commentary on this case, the author collects the statistics of thirty extirpations of the spleen. Sixteen of these terminated with the death of the patient. Of the fourteen remaining cases nine recovered, but suffered from hernia in the cicatrix of the long incision of the abdominal walls. In five cases only were accurate observations made on the state of the blood. The author concludes as follows: 1. In the adult the spleen can be extirpated without harm. 2. Extirpation of the spleen produces temporary disorder of hæmatopoiesis. 3. These disorders are compensated by function in excess of the thyroid body and marrow of the bones.—*London Medical Record*.

Ogston on Flat-Foot and its Cure by Operation.

Dr. A. Ogston, in the *Lancet*, Jan., 1884, p. 152, devises a method for the cure of flat-foot, which has been carried out with excellent results in seventeen cases. Strict Listerian principles are employed, and an incision is made, an inch and a quarter long, commencing about an inch from the tibia, so that the centre will be over the articulation of Chopart's joint. No important structures are divided; the vessels are to be tied with catgut. All the soft parts are cut through down the head of the astragalus; after the caput tali has become visible, free access to the joint has to be obtained by separating the attachments of the ligamentous capsule to the edge of the scaphoid for a distance of half

an inch on each side of the wound. The ligament is seized by a dissection-forceps, elevated, and detached from its insertion into the scaphoid; its connections with the periosteum and fibrous structures over the scaphoid being maintained as far as possible by cutting with the edge of the scalpel directed towards the toes, the blade lying parallel to the bone. In this manner, a T-shaped opening is made into the joint. The next step consists in taking a stout chisel, half an inch broad, beveled on one side; this is held in the right hand with the beveled side away from the caput tali, while by its means the articular cartilage is shaved away from the whole of the exposed surface of the bone over as great an extent as possible, a thin layer of the subcartilaginous bone being also removed, so that the cancelous structure is well laid bare. The chisel is next applied to the scaphoid, the beveled side being held toward it, and by repeated shavings the denudation is carried as far as possible between the bones. In this manner each bone is bared of its cartilage; and if the arch be now restored to its normal position, the two surfaces are found to correspond, the head of the astragalus retreating into its normal position behind the scaphoid. The next step of the operation is to nail the bones together with ivory pegs. The joint is washed with 1 in 20 carbolic lotion and dressed in Lister's dressings, covered by a few turns of plaster-of-Paris bandage to steady the foot. The patients are kept in bed for two or three months, and in a week or two are able to walk freely.

—*London Medical Record.*

Robert S. Archer, B.A., M.B., on Kairin.

Kairin (or kairine) being a comparatively new drug, the action of which has not yet been thoroughly investigated in this country, and there being but few observations published on it in British medical literature, it is hoped that the clinical record of a case illustrating its antipyretic properties may prove of some interest to members of this institution. Our experience of the medicine is limited to the case to be quoted below and another one; therefore it is not intended to formulate any opinion as to the general use of the drug, whether with reference

to its dose, or as to the class of cases it should be employed in. We simply lay before you a record which it will be yours to criticise, and to come to any conclusion each individual may see best.

Kairin is described in chemical language as oxy-chinolin-methylhydrate, the formula for it being $C_{10}H_{13}NO$, and is an artificial alkaloid, prepared from chinolin (C_9H_7O). It was discovered by Fischer and König, and its therapeutic action investigated first by Filehne and other German physicians. It is a yellowish-white crystalline powder, with a rather acrid disagreeable bitter taste. It is soluble in water; but, on account of its taste, is recommended to be prescribed in gelatine capsules. (We use it in mucilage and water). It has no perceptible odor.

I have here to express my sense of indebtedness to Dr. Oldham, resident medical officer at Netherfield Fever Hospital, for the care and precision with which he conducted the majority of the following observations.

CASE.—Wm. H., aged 19, was admitted to the hospital on Wednesday, Nov. 14, 1883, at 11:30 A.M., suffering from enteric fever. We could not procure a history of the case, and were therefore unable to judge accurately of the day of the fever.

November 14th. On admission his pulse was 124; temperature 104.6° ; and respiration 36. The tongue was dry in the center and moist at the edges. There were rose-colored spots scattered over the abdomen. He was very heavy and stupid-looking, aspect rather livid; no abdominal distension nor apparent tenderness; sordes on teeth; almost comatose, and quite helpless.

November 15th. He had passed a restless night; in other respects he was much the same as yesterday, with the addition of a good deal of congestion of the left conjunctiva and some bleeding from the gums. At my visit at 11 A.M., the pulse being 128 and dicrotous, respiration 42, and temperature having risen to 104.6° , it was determined to try Kairin in $7\frac{1}{2}$ grain doses. The first dose was not given till 2.30 P.M., when the pulse was 124, respiration 40, and temperature 103.3° . One hour after the kairin was given, the pulse was found to

have fallen ten (10) beats, the respiration was unaltered, and the temperature was less by more than a degree and a half (1.5°). The patient was dozing, and the skin moist. 4.30 P.M. The pulse was 108, dicrotism was gone; respiration 32; temperature 100.5° . The patient was sleeping, his skin perspiring freely. Another dose of kairin was given. 5.30 P.M. Pulse 108; respiration 30: a further fall of temperature to 99.9° ; sleeping; skin soft, but not perspiring. He had half an ounce of brandy at 5 P.M. No kairin was given. 7 P.M. Rigors. Half an ounce of brandy hot. 7.15 P.M. Temperature had run up to 105.6° ; pulse could not be counted at the wrist, but at the heart 130 beats were registered in the minute; respiration 40; skin dry; extremities livid; $7\frac{1}{2}$ grains of kairin were given. It will be noticed that, on the omission of kairin for an hour and three-quarters, the temperature had run up 5.7° , the pulse had become imperceptible at the wrist, and, on the whole, the patient may be said to have been almost moribund. At 7.30 P.M., that is, a quarter of an hour after the kairin was given, the temperature had fallen close on a degree; the pulse was 126, could be counted at the wrist, but was slightly intermittent; respiration continued the same (40); skin soft, lividity had passed away; patient apparently dozing. 8 P.M. There was a further fall of temperature of nearly a degree; pulse 126, regular, not intermittent nor dicrotic; respiration 36; perspiring freely; dozing; slight cough; a few bronchial *râles*. 8.30 P.M. A slight rise in temperature, the medicine having been omitted for an hour and a quarter; therefore, a dose was given, with the effect that at 9.45 P.M. the temperature had fallen a little over a degree; pulse remained the same, and respiration having risen slightly; skin moist; patient sleeping. Half a dose ($3\frac{3}{4}$ grains) was given, hoping that it might keep the temperature under control. 11 P.M. There was a slight rise of temperature to 103.1° ; pulse 119; respiration 32. Half a dose was given. 12 midnight. The temperature having risen half a degree, there also being a slight increase in the pulse and respiration rates, it became evident that the half-doses, although probably exerting some control, were not

sufficient, therefore a full dose was given.

November 16, 1 A.M.; pulse 120, respiration 34, temperature 102.4° . Perspiring freely, quiet but not sleeping. Kairin, $7\frac{1}{2}$ grains. 2 A.M. Pulse 108, respiration 38, temperature 100.7° ; $7\frac{1}{2}$ grains of kairin. 3 A.M. Temperature 98.7° . 3.45 A.M. Patient was reported to have begun to shiver, became flushed and then livid, accompanied by an increase of the tremors. 4 A.M. Temperature 100.2° . 4.20 A.M. Dr. Oldham was called up, and found the patient "shaking all over like a man in the cold stage of ague, respiration over 60, loud and snoring, pulse at wrist scarcely perceptible, and could not be counted." He was given half an ounce of brandy hot, after which the patient spoke rationally. 4.40 A.M. Brandy one ounce, hot. 4.45 A.M. Respiration 44, and fuller. Still moaning. Somewhat livid about face and extremities. 5 A.M. Respiration 44, temperature 105.7° ; kairin, seven and a half grains. 5.30 A.M. Pulse 160, more perceptible; respiration 44, but not snoring as before; temperature 105.4° ; rigor almost subsided. 6 A.M. Pulse 130, full, respiration 34, temperature 105.2° perspiring; kairin, seven and half grains. 7 A.M. 101.2° , showing a fall of four degrees in an hour; $3\frac{3}{4}$ grains of kairin. 8 A.M. Temperature 99.5° ; $3\frac{3}{4}$ grains of kairin. 9 A.M. Temperature 97.6° ; $1\frac{1}{2}$ grains of kairin. 10 A.M. Temperature 100.4° . 10.30 A.M. Temperature 102.3° . Shortly after this another rigor supervened, the face and extremities becoming somewhat livid. 11 A.M. Pulse 140; to be felt with difficulty; respiration 44, noisy; temperature 105.5° , that is showing a continuous rise of nearly seven degrees since the last dose of medicine two hours before; $7\frac{1}{2}$ grains of kairin, $\frac{1}{2}$ ounce of brandy every hour. 12.30 P.M. Pulse 150, respiration 44, temperature 103.5° . Tongue cleaner, expression clearer; conscious, and answered direct questions; he passes his urine in bed; it stained the sheets of a greenish color; $7\frac{1}{2}$ grains of kairin. 1.30 P.M. Temperature 102° . 2.30 P.M. Pulse 126, respiration 44, temperature 103.9° , showing the tendency to rise; $3\frac{3}{4}$ grains of kairin. 4 P.M. Pulse 136, small and feeble; respiration 52, shallow; temperature 101° ; quite conscious to all going on

around him. 6 P.M. Pulse 144, counted at heart, could not be felt at wrist; respiration 60, temperature 103.6°. Rigors again commencing with rigidity; two motions from bowels during afternoon; 7½ grains of kairin, shortly after which the pulse could be felt beating feebly at the wrist. 7 P.M. Pulse 148, respiration 54, temperature 103.8°. 7.45 P.M. 7½ grains of kairin. 8.30 P.M. Pulse 170 at heart, respiration 60, temperature 102.6°. 9.30 P.M. Temperature 101.7°. 10.30 P.M. Temperature 100.8°. 11.30 P.M. Temperature 104.6°; 7½ grains of kairin.

November 17th, 12.30 A.M. Temperature 103° Pulse 170 at heart, respiration 60; cold sweat all over the body; extremities cold; moribund. 2.30 A.M. Temperature 105°; death.

From the time that kairin was commenced at 2.30 P.M. on November 15th till his death, about 36 hours, 9.625 grammes, or 144.375 grains, were administered.

At the time the patient was admitted to hospital his case was manifestly a desperate one, and on two or three occasions, when he was to all appearances about to die, kairin apparently seemed to have a great influence in assisting to resuscitate the flagging vital powers, and we had some slight hope of rescuing him, bearing in mind an aphorism of Graves to the effect that "as long as life lasts, no matter how fatal the symptoms may appear to be, you should never despair of recovery in fever."

Dr. Filehne (*Berliner Klinisch Wochenschrift*, No. 16) lays down some definite rules for the administration of kairin, which it may be as well to give here in their entirety for the guidance of those who may be inclined to make a trial of the drug. He writes to this effect:

"It is advisable to commence with doses of 8 grains per hour on the first day, and to give these say four times successively, but to cease as soon as the temperature has attained 100° F. The temperature should be observed every two hours, or, if possible, every hour, during the first day. As soon as the temperature has been lowered by the above doses to about 100° F., only four grains should be given per hour until the temperature is again perceptibly rising, when the former dose of 8 grains should once more be administered. This dose

of 8 grains has to be administered at once should the patient feel the least chilliness. The patient has to be particularly instructed to immediately report such chilliness, or rather meet it by a dose of 8 grains. Should it occur that 8 grains per hour have not had the desired antipyretic effect after four administrations, doses of 16 grains should be given twice, three, or four times at intervals of one hour; when, on the other hand, the action of 8 grains per hour is perceptible after four hours without proving sufficient, 12 grains are given about four times at intervals of an hour. The doses of 16 or 12 grains per hour should be discontinued when a temperature of about 100° Fahr. is attained, keeping a reserve dose of 16 or 12 grains respectively in readiness, to be taken at once in case the patient feels the least chilliness. When the temperature has again risen within two to six hours, the administration of kairin is to be resumed. As the human organism neither gets accustomed to this remedy nor shows a cumulative effect from kairin, a single day's careful experimenting, as indicated above, will be sufficient to regulate the dose afterward. When the weight of the body or the condition of nourishment is excessively low, and in cases of hectic fever, smaller doses should be tried at first. The urine which is passed during the administration of kairin possesses a blackish green color."

Dr. Paul Guttman (*Berliner Klinische Wochenschrift*, No. 31) has used kairin 72 times in 42 patients, including cases of pneumonia, measles, phthisis, typhoid fever, scarlatina, pleurisy, peritonitis, erysipelas, ague, and septicæmia. The drug was given at periods when, in the normal course of the fever, the temperature would not be expected to remit. In most of these cases, the temperature ranged from 103° Fahr. to 105° Fahr. at the time of observation. A gradual fall of temperature was noticed after a dose of eight or sixteen grains every hour, so that in three or four hours a marked depression occurred, in several cases reaching the normal line. Sweating and a fall in the pulse-rate were also observed (as in our case) to follow its administration. No unpleasant symptoms were noticeable. It was observed that repetition

of the dose did not lessen the antipyretic action, and, also, that discoloration of the urine commenced about twelve hours after the first dose, and continued for about twenty-four hours.

An interesting case is reported (*Berliner Klinische Wochenschrift*, September 10th, 1883) by Dr. Knipping. A woman, aged 20 years, suffering from puerperal pyrexia. Fourteen days after labor, symptoms of parametritis manifested themselves, which were followed by periphlebitis of one leg, and then of the other, the temperature running up to 105° Fahr., and the pulse varying between 120 and 130. On the thirty-fourth day, with a temperature of 106.4° , and the heart evidently failing, kairin was commenced in eight-grain doses, in gelatine capsules, every hour. The temperature descended more than four degrees, accompanied by profuse sweating after the first dose; and, at the end of the fifth hour, there was a further depression of two degrees. The medicine being now reduced to four grains, a rise of over five degrees occurred, the bad symptoms also returning; thereupon, the dose was doubled, with the effect that, at the end of four hours, the temperature had fallen from 105.4° to 101.2° . The four-grain doses being now again resumed, the temperature ran up to 102.2° and 103° , which, however, the larger dose reduced to 100° . Two hundred and twenty doses were given in a week, without the exhibition of toxic symptoms, with the exception of slight pricking about the nose and forehead after the first dose.

Dr. Gottlieb Meckel has published (*Deutsches Archiv für Klinische Medicin*) some observations on kairin, and comes to the following conclusions, which, however, we may not all be able to adopt until further researches have been made known, viz.

(a) Kairin is very powerful, if not the most powerful, antipyretic. (b) It reduces the febrile temperature, the reduction depending, however, less on the size of the dose than on the constitution of the patient, and the cause of the febrile symptoms. (c) The reduction of the temperature takes place without collapse or any other disagreeable after-effects, and the doses are well borne by the patient. (d) The first large dose

ought to be followed by several smaller, with close observation of the temperature. (e) Kairin will be of greatest benefit in diseases of continued fever, in which the heart and lungs are not affected.

In the *British Medical Journal*, of December 8th, 1883, there is published, by Dr. Ashby, of Manchester, an interesting note on a case of enteric fever in a child aged 10 years, in which two-grain doses always reduced the temperature two degrees at least. The drug appears to have been given only every four hours.

In the number of the *Liverpool Medical-Chirurgical Journal* for January 1884, in "Notes on some Important Therapeutic Agents," Dr. Carter gives a short and interesting sketch of his experience of kairin, and refers to a case of acute rheumatism with hyperpyrexia, in which the drug was administered with apparently very satisfactory results. These last two are the only observations by English physicians that I have been able to find. During the last few months there have been, from time to time, editorial articles in the English journals on kairin, but these were in reference to German investigations.—*British Medical Journal*.

A Ramrod in the Brain—Recovery.

By Geo. Fischer (*Deutsche Zeitschrift f. Chirurgie*) the following unparalleled case in surgical literature is related: At a shooting festival in Hanover, it occurred, that a carbine was unexpectedly discharged, from which the ramrod had not been drawn. The ramrod struck a man in the back, was driven through the neck and head, from which it projected. The man reeled, staggered, but did not fall. He was laid down; he remained motionless and speechless. A comrade tried to draw the rod out, he used enough force to raise the body from the ground, but without success. Other attempts were made to that end so much so, as to drag the body over the ground, but failed. He had nausea and vomiting, but finally answered questions rationally.

Four hours later he was in the hospital. The obtuse end of an iron rod, thirty centm. long, projected on the left

side, over the foramen supraorbitale. The integuments grasped tightly the rod, not a drop of blood escaped. On the right side of the neck, below the angle of right submaxilla, was a great hard and painful swelling. Nothing abnormal could be felt in the throat. Between the right scapula and the vertebral column in the region of the 4th dorsal vertebra was a gunshot wound of the size of a five cent piece, with black edges; the patient could stand up, was weak, apathetic, but could give rational answers, and remembered distinctly the whole occurrence. The pupils were dilated, sight not very good, bleeding from right nostril, breathing normal, pulse rhythmic, sixty. The ramrods of carbines have a large button on one end; and as these rods are very short, the button end must necessarily be imbedded in the neck. Without an anæsthetic, the wound was enlarged, and the button end of the rod was discovered up in the region of the sterno-cleido-mastoideus. The larger vessels were not seen. The rod was firmly wedged in the cranium, so that in order to loosen it, the bones had to be chiseled away around it, and by many blows of a hammer it had to be driven downward, before it could be extracted. No bleeding.

The patient was perfectly cognizant of what was going on, and made many sensible observations. He lay absolutely motionless, while, with a hammer, the rod was driven down. The operation lasted one hour. The rod was fifty centm. long, the lower end six mm. the upper seven mm. thick. The button had a circumference of four centm.

Cerebral symptoms were only trivial, first those of concussion, later of compression of the brain, memory little impaired. Escape of cerebro-spinal fluid in the right nostril. Amaurosis of right eye, suppuration of right ear, temperature a little higher, frequency of pulse, slow respiration, digestion, micturition not disturbed. The length of gun-shot canal was thirty-five centm.

In order to ascertain the probable injury of the various organs and tissues, Prof. Henle of Göttingen imitated the canal on a cadaver. He found: The ramrod after penetrating the back, between the M. splenius cervicis and M. levator scapulæ without injuring the cavity of

the chest, before the vena jugularis int. and art. carotis communis, near the bifurcation, behind the M. sterno-cleido-mastoid, behind the belly of the M. stylo-hyoid, and stylo-glossus; immediately behind the posterior margin of the median root of the pterygoid processes the ramrod entered the cranial cavity. It penetrated to the right sphenoid fossa, the lower floor of the orbital cavity, went through the right canalis opticus, lacerated the optic nerve. Here it struck the right gyrus, went then a distance between both hemispheres to the left side of the falx cerebri, then through both gyri fornicati up, three c. m. long through the left gyrus frontalis superior, and through the os frontalis ant.

After nine weeks patient left the hospital cured, after eleven months was perfectly well, attended to his very laborious duties, and dances all night as often as he can; amaurosis continues.—*St. Louis Med. and Surg. Journal.*

Society Proceedings.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

Etherization by the Rectum.—

Dr. Abner Post reported three cases at the Boston City Hospital. The *Boston Medical and Surgical Journal* of April 17th had a short account of etherization by the rectum as done at Lyons. Its administration in that manner has been tried at the City Hospital since that publication.

The ether has been given from a small bottle with a perforated cork, to which is attached a rubber tube, to the other end of which is fastened a catheter. The bottle of ether is placed in a vessel of warm water, and the catheter passed into the rectum. The ether is seen to boil in the bottle, and its vapor is conveyed through the tube into the bowel. The hot water used was drawn from the hot-water pipes, and was so hot as to be uncomfortable to the hands.

The first case was a patient of Dr. Homans, a man with cellulitis of the arm, who had been vomiting before etherization. After the tube was introduced he first complained of the taste

of ether in the mouth. It was then noticeable to the by-standers in his breath. His pulse grew rapid, the pupils dilated, he partially stiffened out, put his hand to his mouth, vomited, and anæsthesia was complete at the end of thirteen and a half minutes. The ether was discontinued almost as soon as he was insensible, but the anæsthesia continued for nearly thirty minutes, probably not so complete as to allow surgical interference without shrinking during all that time, but so complete that he lay without motion. During the afternoon he had two or three loose discharges, mostly gas, for which he received a starch and opium enema, and which soon ceased.

The second case was a woman of large size, who had eaten a hearty breakfast before coming to the hospital. She took an ounce and three quarters of ether, and was insensible for thirty-four minutes. During the etherization the ether was administered evidently faster than absorption took place, as her abdomen became sufficiently distended to embarrass respiration; but a little pressure on the abdominal walls caused the gas to issue from both ends of the abdominal tube, and all difficulty ceased.

On recovering, this woman vomited perhaps an ounce of thin, yellowish fluid. Within an hour had a natural movement of the bowels, and afterwards two slight loose operations, one of which was tinged with blood.

The third case was in every way a most favorable one except in length of time required to produce insensibility. The ether was given more slowly to avoid the distension of the bowels that had occurred in the previous case. A little less than two ounces was given, and etherization was complete in fifteen minutes. The stage of excitement was marked by a laugh and a comical remark or two, but no struggle. Insensibility continued nearly thirty minutes, and no unpleasant symptoms occurred during recovery. This patient was operated on for piles, and her rectum was packed with sponges to provide against hæmorrhage. Slight meteorism occurred, but no more than might well follow the closure of the anus. The sponges were removed after a few hours, but no diarrhœa showed itself.

So far as it is possible to draw conclusions from present experience, etherization by the rectum differs from inhalation principally by the absence, or rather the diminution, of the stage of excitement.

If vomiting occurs during the etherization it does not interrupt the administration of the anæsthetic.

The unpleasant after effects seem less marked. Vomiting, if it occurs at all, is slight.

The secretion of mucus, which so frequently fills the mouth and air passages, has not occurred so far. The spasm of the glottis which sometimes occurs at the commencement of inhalation, and which is the result apparently of the local effects of ether vapor, is not to be expected by this method.

The feeling of suffocation which is so common when ether is given by inhalation, and which is the cause of most or at least a large number of the struggles which patients sometimes indulge in, is wanting.

Of course the constitutional effects of ether, however given, are the same. The use of a much smaller quantity is sufficient to induce anæsthesia when given by the rectum, where all is absorbed, than when given by inhalation; at the same time the effect is slower in most cases. After complete anæsthesia is reached it is apt to grow more profound after the supply of ether has been removed — so that its administration should cease when once the patient is asleep.

The effect of ether upon different individuals varies very widely. It cannot be supposed that no patient will ever struggle if etherized by the rectum. Of course the man who makes a row whenever he is drunk will probably show his ugly disposition when ether is the cause of his excitement, but so far the excitement shown has been very small. The disagreeable effects seem to consist in the possibility of blowing up the rectum. Evidently the power of absorption differs in different individuals; probably the rate at which the vapor is poured into the rectum differs, as it ought to do, where the heat applied is indefinite and variable. It is necessary to watch the abdomen somewhat to see that it does not become ballooned.

An irritation of the rectum is set up in some cases which, perhaps, corresponds to occasional effects on the air passages when the ether is inhaled, but nothing so far has transpired to cause alarm or any thing more than a temporary inconvenience.—*Boston Med. and Surg. Journal.*

NEW YORK ACADEMY OF MEDICINE.

The Treatment of Membranous Croup.—At a meeting of the Obstetric Section of the Academy held Thursday evening, April 24th, Dr. A. Jacobi read a paper on the medical treatment of membranous croup. Having repeated his assertion, made in 1868, that there ought to be no contra-indication to the performance of tracheotomy whenever, no matter how young the child or what complication might be present, there was danger of death from suffocation, and having stated that he had himself now performed it more than four hundred times, he said that he could hardly be accused of underrating the value of that operation (which had, indeed, already been discussed at a previous meeting) if he confined himself on this occasion entirely to the medical side of the treatment of croup.

He spoke first of the use of pilocarpine, and said that he had not modified the opinion which he had expressed in regard to it at the meeting of the American Medical Association in 1881, when when he stated that in severe cases of septic pharyngeal and laryngeal disease he had found that this remedy actually hastened the fatal termination by inducing cardiac failure. He then mentioned two cases which had been under his care at the Mount Sinai Hospital, in which one of the children was a little over, and the other a little under, two years of age. Neither case was very severe, and the treatment consisted of the inhalation of steam with the vapor of turpentine, under a tent, and the use of pilocarpine muriate in one-thirtieth-grain doses after the manner of Guttman. Under this treatment one of the cases got well, but in the other the pilocarpine had to be withdrawn after two days on account of its depressing effect, notwithstanding the fact that alcohol was freely used to

counteract this. The final recovery in this instance was attributed, first, to the macerating effect of the pilocarpine on the mucous membrane, and, secondly, to the timely discontinuance of the drug. Dr. Jacobi also mentioned another case, three years ago, which recovered with a fair amount of strength after taking it for four days, and said that his final opinion in regard to it was that it was a powerful remedy, which was of considerable service in certain cases, but which, on account of its debilitating effect, had to be watched with great care, while at the same time its depressing influence was counteracted as far as possible.

In regard to the use of steam inhalations, his views, as expressed in his treatise on diphtheria published in 1880 (page 168), had not changed. In employing them it was not to be forgotten that by this agency the underlying tissues were also softened, and that the poison was thus sometimes enabled to penetrate more deeply. The results were not always satisfactory, and he had seen cases which became distinctly less cyanotic on being taken out of an atmosphere filled with steam. At the same time in many instances the steam was of great service, the benefit depending to a large extent on the special locality affected. Thus wherever there was pavement epithelium beneath the membranes it could not be employed successfully. He therefore again insisted that steam will improve; steam will impair. It was a matter of vital importance where steam inhalations were resorted to that the patient should also have plenty of fresh air.

He also repeated his conviction of the utility of the inhalation of turpentine, which he had first employed many years ago in cases of pneumonia where resolution and expectoration had not commenced. He recommended that about a tablespoonful of the rectified spirits or oil should be poured into water that was being heated over an alcohol lamp or stove or the gas every hour or oftener, and mentioned one case at the Mount Sinai Hospital in which a child two years old was kept, with its nurse, under a tent filled with steam charged with turpentine for four successive days and nights. No other treatment was used

except the internal administration of chloride of potassium and tincture of chloride of iron, and he believed that by this means the case was kept from becoming a severe one.

Dr. Jacobi then said he would select one topic for discussion in this connection which was not a new one, but which in the light of recent developments, had excited renewed interest, and that was the treatment of croup by mercurials. In order that the subject might be discussed intelligently he first gave a very careful and complete review of the opinions of various authorities in regard to it from the time that Dr. Samuel Bard wrote, in 1771, down to the present. In regard to his own opinion concerning the use of mercury, in the treatise on diphtheria before referred to he had expressed himself as more favorably disposed toward it at that time (1880) than he had been in former years, and since then he had still further modified his views in the same direction. At the meeting of the American Medical Association in 1881 he had been particularly impressed by the remarks of Dr. William Pepper, of Philadelphia, in favor of the bichloride of mercury treatment. The latter, in the course of his address on medicine, said that his attention had been called to the matter by a paper read by Dr. G. A. Linn before the Pennsylvania State Medical Society, in which he reported a number of cases of pharyngeal and laryngeal diphtheria treated with eminent success with the bichloride, and that he had first used it himself in a case of diphtheritic croup which he saw in consultation with Dr. Yarrow, of Philadelphia. The child, at the time the remedy was commenced, seemed actually at the point of death, and the recovery appeared to him nothing less than miraculous. Dr. Jacobi then went on to say that although he did not claim to be one of those "who never lost a case," he had found the treatment by bichloride of mercury very satisfactory as a rule. He recommended that it should be given very largely diluted (about one grain to the quart of water) in order that gastric and intestinal disturbances might be avoided. Having mentioned the great superiority as an antiseptic of this agent to all others that had yet been discovered, he referred to a paper published by Dr.

William Thallon, of Brooklyn, in the *New York Medical Journal* for April 12 and 19, 1884, in which he reported ten cases successfully treated with the bichloride.

The last part of the paper was devoted to the treatment of the patient after tracheotomy had been performed, after which he summed up his conclusions as follows —

(1.) The mercurial treatment of membranous croup is promising of good results.

(2.) Corrosive sublimate is, as a rule, the best of the preparations of mercury for this purpose.

(3.) It should be given early, and the dose frequently repeated.

(4.) It should always be given largely diluted (about one to three thousand).

(5.) To infants half a grain should be given in the twenty-four hours, and this quantity may, as a rule, be kept up for a considerable number of days without any evil results.

(6.) Salivation and stomatitis are very rarely observed, and gastro-intestinal disturbances are not frequent from its use.

(7.) If any such disturbances should result mercurial inunction, preferably by the oleate of mercury, may be instituted for the bichloride.

(8.) If the case is taken in time the treatment for croup itself may frequently be prevented by the use of the bichloride when the croup is the result of descending pharyngeal diphtheria.

After the conclusion of the paper he referred to the details of three cases successfully treated with bichloride of mercury, which he said he had selected as samples out of a large number of others. The first was one which he saw in consultation with Dr. E. J. Hogan, in which the child was apparently dying from increasing obstruction after tracheotomy had been performed. The second, which was seen in consultation with Dr. Hanks, was a case of croup resulting from pharyngeal diphtheria, and the third, a desperate case of fibrous tracheo-bronchitis in an infant of five months, was seen with Dr. T. Herring Burchard, who read a minute history of it. In a few supplementary remarks Dr. Jacobi then said that within the last fourteen years he had never met with so many success-

ful results in croup, either before or after the performance of tracheotomy, as during the past year, when he had largely depended on the bichloride of mercury.

Dr. Forrest stated that two years ago he had a case of croup which grew worse steadily for four days, and was suffering from complete aphonia, when Dr. Jacobi, who had been called in consultation, recommended the use of one twentieth of a grain of bichloride of mercury every hour. Three doses of the drug, however, produced such marked tenesmus that the dose was reduced to one fiftieth of a grain, but the latter quantity was well borne, and the case resulted successfully. Since then he had tried the bichloride extensively, and as a rule, had found that it acted surprisingly well. When he used steam inhalations he always employed Codman and Shurtleff's atomizer, which he thought was decidedly preferable to filling the whole room (the air of which should be kept fresh and at a temperature of about 70° F.) with steam, and he was in the habit of ordering a teaspoonful of Listerine to be put in the water of the atomizer every half hour. Whether the antiseptic had any special effect or not on the disease he was unable to say.

After some remarks by Dr. John C. Peters, who stated that he was a strict localist (believing that in diphtheria the systemic infection originated by absorption from the diseased throat) and principally advocated the topical use of astringents and chlorate of potassium. Dr. J. Lewis Smith spoke at considerable length on the mercurial treatment of croup. The seniors present, he said, would recall that a number of years ago calomel was in common use in this disease, and some of them would, perhaps, remember quite a noted case that occurred at the Astor House before 1858, when diphtheria was first recognized in New York. A child staying at that house was so seriously ill with membranous croup that several eminent physicians of the city said that it was impossible for it to live, when a practitioner from Albany, where the family resided, as a last resort, gave it twenty grains of calomel dry upon the tongue, after which, to the surprise of every-

body, the case began to recover. A prominent medical man in New York at the present day believed that if a large dose of calomel were given at the onset of the attack it would favorably modify the course of the disease; but when diphtheria made its appearance in 1858 the profession were certainly disappointed in the effect of calomel, both in large and small doses, and it was found to produce so much prostration that the mercurial treatment was soon altogether abandoned here, except by a very few physicians. Now, however, there had commenced a revival of the use of mercury. As to the views expressed by Dr. Walton in the paper referred to, he must say that he failed to be convinced of their force. The cases that he reported had been cured by the supposed germicide effect of the bichloride of mercury, which was recognized to be the most powerful agent of this class known to science; but he doubted very much whether it was entirely safe to give corrosive sublimate in sufficient quantities to have a germicide effect upon diphtheritic poison in the system. It was believed that these antiseptic agents acted by being taken into the blood and destroying the disease germs which had found a lodgment there; but he could not but think that if this were the case they would have a destructive effect upon the economy itself, since these minute organisms were as tenacious of life as the corpuscles of the blood, and hence the latter would be destroyed at the same time.

Wherever the pseudo-membranes of croup were formed there was first the exudation from the blood (the fibrine), and, in addition, a collection of altered epithelial cells, as held by Rindfleisch and other authorities. Now, as to the fibrine, it was acknowledged by all that it could be dissolved by alkalies, and in a series of experiments, in which he had participated together with several other physicians connected with the New York Foundling Asylum, it had been demonstrated that a two per cent. solution of liquor potassæ was sufficiently strong for this purpose. With regard to the solubility of the epithelial cells entering into the composition of the pseudo-membranes by alkalies there was at present consider-

able difference of opinion, but this epithelial element was supposed to be analogous to *mucine*, and the latter was undoubtedly soluble in a weak alkaline liquid. He felt constrained, therefore, to adhere to his confidence in inhalations of medicated steam as a principal factor in the treatment of membranous croup, and the alkaline formula which he had found of the greatest service was a two per cent. solution of liquor potassæ in lime water to which a sufficient additional quantity of lime had been added to render it somewhat turbid. When in any case he found huskiness coming on he felt it his duty to resort at once to such inhalations, and if there was but a slight deposit of pseudo-membrane he believed it would be promptly dissolved by them. Another important advantage which he thought they possessed was that when there was an accumulation of mucus in the respiratory tract below the level of the membranes (which was a frequent additional cause of dyspnoea in croup), the mucus was dissolved by the alkaline vapor, and consequently the pus became thinner and more easily expectorated.

At one of the recent discussions on croup in the Section he had expressed the opinion that nothing of an irritant nature should be used by inhalation or in any other topical way. Since then he had noticed that a writer in one of the journals had advised the employment of such a caustic as nitrate of silver, and he thought it was the duty of the Academy of Medicine to protest strenuously against any procedure of this kind. This was the objection which he had to the bromine treatment which had been so highly lauded in diphtheria by one authority in this city—it was too irritating. He had been more and more impressed all the time with the great importance of alcohol in the treatment, and said it was surprising to find what large quantities of it were often tolerated. Thus, it was not uncommon to see a child one year old taking with advantage as much as a teaspoonful of brandy or whiskey every hour. He stated, in conclusion, that he should be glad to make trial of Dr. Pepper's treatment with the bichloride of mercury, as indorsed here on this occasion; but so far as its advantages were shown in the

cases reported by Dr. Thallon he did not feel altogether convinced of its efficacy. This was on account of the character of some of the cases, which the writer designated as croup when there was simple huskiness, without dyspnoea, present. If he (Dr. Smith) were to classify his own cases in the same way he would be able to report that fully one half of his cases of croup recovered under the use of alkaline steam inhalations. Again, in one of Dr. Thallon's cases inhalations of chloride of ammonium were resorted to, and he thought that possibly some of the good effects noted might have been due to this remedy, which was an alkali.

Dr. Jacobi said, in reply, that he thought it was not fair to confuse the calomel treatment with that by bichloride of mercury. The latter produced salivation less frequently than any other preparation of mercury. As to the destruction of the blood-cells, in addition to the bacteria in the blood, this was doubtless true of most antiseptic agents, if used in sufficient concentration to be efficient as germicides; but it had been demonstrated conclusively that it was not true in regard to bichloride of mercury. It had such an extraordinary antiseptic effect that a single grain of it was sufficient to destroy all disease-germs in the blood of a child of five years, which weighed about two and a half pounds. The poison could thus be completely eliminated without effecting the blood itself, since it had no injurious effects upon the corpuscles; and it was furthermore believed to be the only germicide which could get into the blood in an unchanged condition. It was at present undecided whether diphtheria depended on a micrococcus or not, but he would not discuss that question now. He looked on the bichloride simply as an antifermentative, and he had seen it produce some remarkable practical results. That was sufficient to encourage him to go on with its use, and he was content to wait for a theoretical explanation of its *modus operandi* that could be found correct.

In closing, he said he wished to lay stress again on the fact that when the bichloride was employed it should be given as early as possible and in frequently repeated doses. There were,

as a rule, no bad results from it whatever, and in one or two cases he had given as much as a grain in the twenty-four hours. A child of five months should have at least half a grain in that time. Since he had heard of the tenesmus produced by it in a case which he saw with Dr. Forest, however, he had been careful not to have the dose too large, and he was always particular about having it very freely diluted.—*Boston Med. and Surg. Journal*

Correspondence.

The mortgage debt of the Manhattan Eye and Ear Hospital has been canceled by the bequest of fifty thousand dollars made by the late Hon. Edwin Denison Morgan.

C. R. AGNEW, Secretary.

To the Editor of the Æsculapian :

DEAR SIR :—As the impression seems to be more or less prevalent that the New York Skin and Cancer Hospital has abandoned the cure of cancer, we deem it desirable to have the error corrected. The aim of this institution from the first has been to undertake the study and treatment of this disease, and over one-third of its beds have from the opening of the present building been set apart for this purpose.

A tract of land of nearly one hundred and fifty acres has recently been secured just beyond the city line and the plans for cottage pavilions have already been drawn. It is proposed to erect some of these at once, and to add to the number as they may be required, so as to afford unlimited accommodations for each and every case of cancer requiring assistance. Both early cases for operation are received and those which are chronic and hopeless.

Our city hospital, No. 243 East 34th street, will still be continued, and clinics held there as follows : For skin diseases, daily from two to four P.M. For cancer, on Monday, Tuesday, Friday and Saturday, at the same hour.

L. D. BULKLEY, M.D.,
GEO. HENRY FOX, M.D.,
J. E. JANVRIN, M.D.,
R. F. WIER, M.D.,
E. L. KEYES, M.D.

Miscellany.

In a clinical lecture delivered in Munich (*Wein. Med. Zeit.*, June, 1883), Dr. Nussbaum expressed a belief that he had discovered a procedure for the positive cure of cancer, by restraining the proliferation of the tissue elements of disease. It appears to him that a total interruption of all peripheral sources of nutrition is the means best adapted to secure the result. He accomplishes this object by the use of the thermo-cautery, with which instrument a deep channel is made quite around the malignant growth, thus cutting off entirely the supply of blood and other nutritive fluids from the surrounding tissues. The small vessels which ascend into the tumor from the parts beneath are sufficient to preserve its vitality, so that gangrene does not occur. He thinks the thermo-cautery far preferable to the ligature, and that it possesses many advantages over the knife. Prof. Nussbaum thinks that this method of circumscribing cancerous growths and cutting off every channel of peripheral nutrition has a brilliant future, especially in those desperate cases in which death is imminent from hæmorrhage. In his hands this method has afforded satisfactory results.

In the *Clinique d' Accouchements* at Paris, Depaul in one of his last lectures said : 'I never support the perinæum ; I am contented with supporting the head of the fœtus and preventing it from emerging too suddenly.' Often, when the perinæum has been supported, it has been found on withdrawing the hand that a rent has been made in the perinæum by the hand itself. For this reason Depaul said, 'Support the head, but leave the perinæum alone.'

Dr. Fontan relates the case of a woman with four breasts, two of which are normally situated. The other two are somewhat smaller, and are situated two centimeters below the upper ones. The woman has suckled with all four breasts, all of which contain an abundant supply of milk.—*London Med. Record.*

Mr. S. Stretton, in the *Brit. Med. Jour.*, Jan. 1884, p. 162, recommends the following method of blistering. The

surface requiring such counter-irritation is to be well covered with annular blisters about the size of the human iris, cut from vesicating tissue with an ordinary gun-punch, the centre being extracted with a punch of small size. Once secure to the surface, and covered with cotton wool and bandage, these blisters require no further attention. The discomfort created is so slight that there is never any resistance to their application.

Dr. A. Ransome, in the *Brit. Med. Jour.*, Jan. 1884, p. 8, details notes on the use of iodoform in the treatment of phthisis. The drug was administered in the form of a pill, a grain and a half, combined with two grains of croton-chloral, three times a day. Twenty-one cases are recorded. Four of these were in the first stage of the disease, and three appear to have received benefit. Five were in the second stage of the disease; all of these increased in weight on commencing to take iodoform; but in three cases the increase did not continue, though they did not lose weight for several months. Of the twelve cases in the third stage, two distinctly gained in weight; six, after sundry variations, remained at the same weight after six or eight months of the treatment. The remaining four all diminished in weight.

The Polish newspaper Kri (Border Land) states that there is at present in the medical faculty of the University of Kharkoff a first year's student, named Dzeetchakowski, whose age is 60 years. In 1863 he was a third-year student of the medical course at the University of Warsaw, but as he took part in the then Polish insurrection, he was exiled to Siberia and remained there till, in accordance with the imperial coronation manifesto of last year, he, in common with other Poles, was allowed to return to Europe.

In an article in the *Gazzett degli Ospitali*, Dr. Queirolo in reference to the Hypodermic Administration of Kairin sums up as follows: 1. The injection of 10 centigrammes of kairin causes a fall of febrile temperature of a few tenths of a degree (centigrade), which disappears in the course of an hour. 2. The injection of 20 centigrammes causes a fall which may amount to seven-tenths of a

degree, and which commences within half-an-hour and disappears in about two hours. 3. The injection of 30 centigrammes produces a fall which oscillates between a few tenths and a degree and a half centigrade; it commences within half an hour and disappears in two hours. Often, however, these doses fail completely, and give rise only to insignificant and fugitive effects. 4. The injection of 50 centigrammes causes a fall of from 1°, 2°, or even 4° C.; the fall begins very quickly, and is dissipated in two or three hours. 5. The injection of 1 gramme has given a fall varying between 2°·7 and 3°·3 C. On one occasion the fall was 5° (from 40°·5 to 35°·5). The fall commences very quickly, reaches its highest point in two hours, and is dissipated in five hours and a half. The pulse is depressed in proportion to the descent of the temperature. He concludes that kairin administered hypodermically produces more rapid, more lasting, and greater falls of temperature than when given by the mouth. Much smaller doses too are required. This method of administration is free from inconvenience, local or general.

Dr. T. F. Chavasse, in the *London Lancet*, p. 1,119, describes a method of treating psoas abscesses. The operation is described as follows: An incision is made immediately above the iliac crest, commencing at the edge of the erector spinæ muscle, and carried transversely outwards for four inches towards the anterior superior spine. The structures are divided as in colotomy, until the anterior edge of the quadratus lumborum is reached. The forefinger is then passed downward and forward on the iliacus, until the tense and distended psoas-sheath is detected. A scalpel introduced by the side of the finger is now plunged into the sac, and the incision enlarged by a pair of dressing-forceps. Drainage-tubes are inserted into the wound, and left there as long as necessary. Notes are given of two cases treated by this method. The advantage of this proceeding is said to be efficient drainage, close to the diseased bone, through an orifice removed from the septic influence of the genital organs. Mr. Chiene, of Edinburgh, was the first to adopt this method.

In the *Vratch*, No. 34, p. 563, Dr. V. M. Zakharevitch details the cases of two strong and generally healthy medical men, aged 26 and 24, who died, one on the sixth, and the other on the tenth day after extraction of teeth. In each of the patients the left inferior second molar tooth was removed. In one of the cases, osteomyelitis, and in the other, osteitis and periostitis of the lower jaw developed, all the symptoms being unusually severe. The author believes that the inflammation from its onset was of a septic character, the wound being septically poisoned by the dentists having employed unclean instruments. In view of these two exceedingly sad cases, Dr. Zakharevitch strongly insists on the necessity of strict antiseptic precautions in tooth-extraction. He makes his patients, before the operation, carefully cleanse their teeth by means of a brush with plenty of soap, and wash out the mouth with 1 or 2 per cent. carbolic solution. The carbolic washing is repeated after extraction. When the bleeding is arrested, he powders the wounded alveolus with iodoform, puts into its cavity a small plug of wadding, sprinkled also with iodoform, and seals the socket with collodium. All the instruments employed are disinfected both before and after the operation.

Mr. Fred. Treves, in a paper read before the Royal Medical and Chirurgical Society (*Brit. Med. Jour.*, Jan. 1884, p. 58), proposes an operation, by which the anterior surfaces of the bodies of all the lumbar vertebræ, and also some of the dorsal could be reached from the loin; so that, in cases of spinal caries, the morbid products, arising from the diseased bone, could be prevented from traveling a long distance before an incision is made to evacuate them. A vertical incision near the outer edge of the erector spinæ, through the sheath of that muscle and the quadratus lumborum, then through the psoas muscle, will reach the bodies of the vertebræ, so that they can be examined, and carious or necrosed bone removed, as well as affording direct exit to all morbid products. The author detailed three cases in which he had performed this operation with good results. A long discussion followed the reading of the paper, in which Mr. Fur-

neaux Jordan and Mr. Noble Smith advocated mechanical fixing of the spine, a practice strongly protested against by the author.

Mr. W. Whitehead (*Brit. Med. Jour.*, Jan. 1884, p. 165) records the case of a woman, 28 years of age, who suffered from a tumor commencing three inches above the iliac crest, and extending within an inch of the tip of the coccyx; its circumference being twenty-two inches, with a transverse diameter of fourteen inches. After five weeks' observation the tumor was tapped; and whilst the sac was flabby the finger could detect, the skin being invaginated, a triangular opening into the spinal canal through the last lumbar vertebra. The evacuation of the tumor was followed by violent cerebral symptoms, which grew so alarming that at length it was decided to apply the cautery freely to the entire surface of the tumor, followed by a free application of collodion. In two days the alarming symptoms had all gone. Ten days later, the entire tumor was laid open by a single incision from the top to the bottom; pus was evacuated, and the cavity loosely packed with iodoform gauze. It healed well, and two months later the patient was well.

A Family of Idiots.—There arrived here from England a few days ago a consignment of plaster casts of the heads of six members of a family of seven persons, whose peculiar circumstances have aroused renewed attention in Europe to the study of heredity. The family is composed entirely of idiots. The father is named Hellings and resides in Eccles, Suffolk County, England. Although undoubtedly an idiot he learned the trade of a carpenter in its minor branches and managed to support himself during nine months of each year; the other months he passed in the workhouse, where he met an idiot woman whom he married. Five children were born, all mental and physical counterparts of their parents and unable to care for themselves; consequently the parish has been forced to support them. These casts represent the mother and children. The father refused to have an impression of his head taken.

M. Pasteur, aided by MM. Roux

and Chamberland, have made a series of experiments on rabies. In a communication presented to the Académie des Sciences and Académie de Médecine, they state that, when the virus is directly introduced into the circulation, symptoms of paralytic rabies are manifested; but the peculiar noise like barking, accompanied by a state of fury, is absent. The virus has a decided tendency to become deposited in the encephalon and spinal cord; but it is also observed in some peripheral nerves—the pneumogastric and sciatic. It has also been observed in the submaxillary and sublingual glands. Under certain conditions the virus retains its toxic properties. The body of an animal dead from rabies was kept for some weeks at a temperature between 0° and 12° C. (32° and 53.6° Fahr.) Inoculation was made with fragments of the central nerve-substance, and rabies resulted; virus, preserved in sealed tubes, and kept at a low temperature, retained its virulence. M. Pasteur has observed that, when the virus is clear and transparent, it is much more active than when turbid. With regard to the presence of micro-organisms in the virus of rabies, M. Pasteur does not decide either affirmatively or negatively, but says that the blood of animals attacked by rabies presents a special kind of granule, which is the toxic element, inasmuch as rabies is produced by injecting this blood into the veins of healthy animals. Hypodermic injections of small quantities of virus provoke a form of rabies which develops slowly. M. Pasteur thinks that the virus is more quickly absorbed when injected into the circulation than into the lymphatics. After a series of inoculations on animals of different species the virus loses its force, and in the last series of animals the symptoms are greatly modified. M. Pasteur's experiments lead him to hope that rabies will be rendered innocuous by inoculation of attenuated virus. In his laboratory are dogs which are rendered exempt from rabies by having been inoculated with attenuated virus. M. Boulter has communicated to the Académie des Sciences the results of M. Gibier's experiments on the production of rabies in birds. M. Gibier inoculated a fowl, which was attacked by paralysis, but recovered. He therefore supposed it

probable that birds can contract rabies but recover. A pigeon and a cock were inoculated with the virus of rabies, and apparently were not affected, but rats inoculated with fragments of the cerebral substance taken from these birds died with all the symptoms of rabies. After twenty-eight days, inoculations made from the birds were without results. M. Gibier has also tested the prophylactic value of garlic and pilocarpin in rabies; and in a communication to the Académie des Sciences he states that he inoculated the cerebral substance of rats with the virus of rabies, according to the directions laid down by M. Pasteur. Those which had been submitted to the influence of garlic and pilocarpin, before and after inoculation, died as rapidly as the others.—*British Medical Journal*.

The great fire at Messrs. Pardon and Sons, Paternoster Row, destroyed the entire edition of the second volume of Dr. Morell MacKenzie's book on *Diseases of the Throat and Nose*. It will, however, be possible to reprint the work from proof-sheets in the possession of the author, but the publication will necessarily be delayed for some months.

In the Vrtach, 1883, No. 24, p. 381, Dr. Koltchevsky, of the Starovskolsky Regiment, records the case of a soldier with three hours' incarceration of a right scrotal hernia. Taxis and a warm bath having failed, the author applied one of the electrodes of Gaiffe's apparatus to the tumor, and the other to the abdominal wall. In a quarter of an hour Faradization brought about the result required.

Dr. B. W. Richardson, in the *Asclepiad* for January, 1884, publishes his essay read before the Medical Society of London, Dec. 10, 1883. The subject is confined to subcutaneous administration of morphia, and is considered under six heads: 1. The circumstances which commonly lead to the habit; 2. the time required to render the habit confirmed; 3. the degree to which the poisoning may be carried; 4. the phenomena produced; 5. the dangers incurred and the ultimate results; 6. the mode of cure of the habit. The author quotes various reasons which his patients have given him for commencing the habit,

and adds that never in his experience has he met with the habit among total abstainers from alcohol. The time required to render the habit completely established is less than a month. Few confirmed habitués stop short at any thing less than three grains in twenty-four hours; some go on to five or six. Usually with doses exceeding three grains, there are some sensations of exhaustion and of mental incompetency; but from ten to twelve grains is not out of the way in confirmed habitués. The phenomena produced and dangers incurred are innumerable. With reference to treatment, the author says, that in some cases, where the motive for commencing the habit is sound, and the dose taken is not excessive, he has deemed it advisable only to regulate the administration of the drug. When, however, it is necessary to stop the drug, there are three ways in which it may be done: 1, by giving a substitute such as alcohol or chloral—a plan which the author strongly condemns; 2, by the gradual reduction of the dose, coupled with other modes of treatment of a general kind, such as carefully regulated diet, change of scene, tonics, &c.; 3, by the abrupt withdrawal of the morphia, and the actual restraint of the habitué until he has ceased to feel the effects of the loss, whatever his torments may be during the ordeal. The author regards this last method only possible in a very few cases, and recommends the gradual withdrawal of the drug, during a period of from seven to fourteen days.

Dr. Clifford Allbutt, in the *Brit. Med. Jour.*, Feb. 1884, p. 397, writes that tibial pains are very characteristic of chronic alcoholism. These pains are commoner in women than in men, and occur also often about the ankles and feet. They are usually associated with marked cutaneous hyperæsthesia. Dr. Allbutt has diagnosed in women many a case of secret drinking by these pains alone, and has little doubt that the cause of them lies in an irritation of the spinal cord or its membranes.

An Unusual Case of Tetanus.—In the *Medical Times and Gazette*, November, 1883, p. 603, an article appears on an inquest held at Guy's Hospital on the body of a boy aged 9, who died

from tetanus two days after a fall from a ladder. No breach of surface could be detected any where, nor was there any evidence of the fall, beyond some pain on pressure about the neck. The *post mortem* examination failed to show any reason for the tetanus; and whether this were of idiopathic origin, or due to some traumatic cause, it is difficult to say. In the *Lancet* of November, 1879, p. 652, a somewhat similar case is reported by Mr. Leigh. A lad practising gymnastics on a horizontal bar fell on his sacrum, and after a few days' discomfort, was suddenly seized with tetanic symptoms, which ended fatally ten days after the fall. No definite *post mortem* changes were found.

Fort on the Action of Coffee.—

The *Deutsche Medical Wochensch.*, of Dec. 5, contains the report of some experiments on the action of coffee made by Dr. Fort, of Rio Janeiro, on himself. He took half a pound of the best coffee he could obtain in one litre of water in the course of the day, and found its effects to be stimulating, and irritating to the nerve-centers. His pulse increased from 72 to 114 before evening; as soon as he lay down in bed and tried to sleep, he was tormented by pains and cramps in all the muscles of his body, and by nausea, pain in the stomach, and gurgling in the intestines, and he did not fall asleep once during the whole night. On the following day, after the evacuation of eighteen thin watery stools, the symptoms improved somewhat, and only headache and loss of appetite remained. The irritation affected the entire nervous system, including the sympathetic; so that coffee is to be looked upon as a stimulant and not a food, although its moderate use is not prejudicial to health.

Petrone on the Action of Drugs on the Respiratory Mucous Membrane.—

Dr. Petrone has made some experiments to prove the action of certain drugs on the respiratory mucous membrane (*Centralb. für die Ges. Therap.*, Oct. 1883). He finds that alkalies injected into the blood of a cat to the extent of 2 grammes (31 grains) cause dryness of the mucous membrane, with anæmia, and the acquisition of a grayish tint; applied directly to the part, they cause increased secretion. From this it fol-

lows that they would be contra-indicated in catarrh, as a local application, except in so far as they might loosen the mucus and facilitate its expectoration. They would also be useful in dry catarrhs. Acetic acid, in the strength of 3 per cent., had the same effect as the alkali in causing an increased secretion, and should therefore be used in the same cases. Astringents, such as tannin, alum, and nitrate of silver, caused whiteness of the mucous membranes, probably from opacity of epithelium, and the secretion was completely arrested. Applied to the nostrils and pharynx, however, they caused hyperæmia and increase of the secretion. Turpentine vapor diminished and subsequently arrested the secretion, but when applied in combination with water, it increased it. Apomorphin, pilocarpin, and emetin irritated the mucous membrane considerably, and pilocarpin caused the production of râles over the lungs. Morphia and atropine also dried up the mucous secretion, so that their favorable action seems to be in that manner, and not as anæsthetics.

An Alleged Remedy for Hydrophobia.—

The *Centralbl. für die Gesam Therapie* of Dec. 1883, mentions a new remedy against hydrophobia, which has been known for some time in Tonquin, and which is now being employed in America and in France. The plant from which the drug is obtained, called hoangnan by the Tonquinese, is the strychnos gautheria, belonging to the natural order Loganiaceæ. The proper course of treatment, after symptoms of hydrophobia have shown themselves, is to administer two or three pills in a spoonful of vinegar at once, and to follow this up by single pills at intervals of about fifteen minutes, until the hands and feet of the patient are spasmodically drawn up, and nervous twitchings, especially about the chin, begin to come on. Preventive treatment, as soon as a bite is known to have been inflicted, consists in the administration of one pill the first day, two the second, three the third, and so on until the physiological effects show themselves. The drug is also employed in the treatment of other poisonous bites, such as those of serpents, and in obstinate cases of skin-

disease. Each pill contains $1\frac{1}{8}$ grain of the powdered cortex, combined with alum and realgar, and made up with mucilage.

Gradenigo on the Pathogenesis of Muscular Pseudo-hypertrophy.—

In a very interesting and complete paper on this subject in the *Annali Univ.* for October and November, 1883, Dr. Gradenigo gives the following conclusions: Muscular pseudo-hypertrophy is a well-defined morbid form, essentially myopathic. The anatomical alteration observed in the muscles has its origin in a congenital incapacity of resistance (deficient histogenic energy) of the striped muscular fibre. The muscles, which in their embryonic formation are not derived from the primitive muscular layers, are not affected by the disease. The intensity of the morbid process varies in the individual muscles affected in relation with the physiological mechanism modified in a determined direction. The hypertrophy of the muscles is compensatory. The wasting and the enlargement of certain muscles can be attributed to one and the same morbid process; the anatomical fact does not differ essentially from that proper to other affections of the muscles. The dichotomous division of the muscular fibres may, perhaps, be considered as characteristic of this disease. The pathogenesis of this disease, primarily myopathic, is secondarily neuro-myopathic.

Of English doctors, Radcliffe made over \$35,000 a year in the height of his fame; Mead, \$25,000; Baillie, \$45,000; Sir H. Halford, \$55,000, and Sir B. Brodie, \$85,000 in the year but one before his retirement, the largest income known. Radcliffe once received \$8,000 as special fee for visiting Lord Albemarle at Namur, Granville \$5,000 and his traveling expenses for a visit to St. Petersburg, and recently Sir W. Gull \$5,000 each for two visits to Pau and \$7,500 for traveling to Perthshire and remaining a week with a patient. But the fee of fees was that received by Dr. Dinesdale in 1768 for inoculating the Empress Catherine and her son at St. Petersburg, viz., \$60,000 paid down, a pension of \$2,500 for life, and the dignity of a baron.

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